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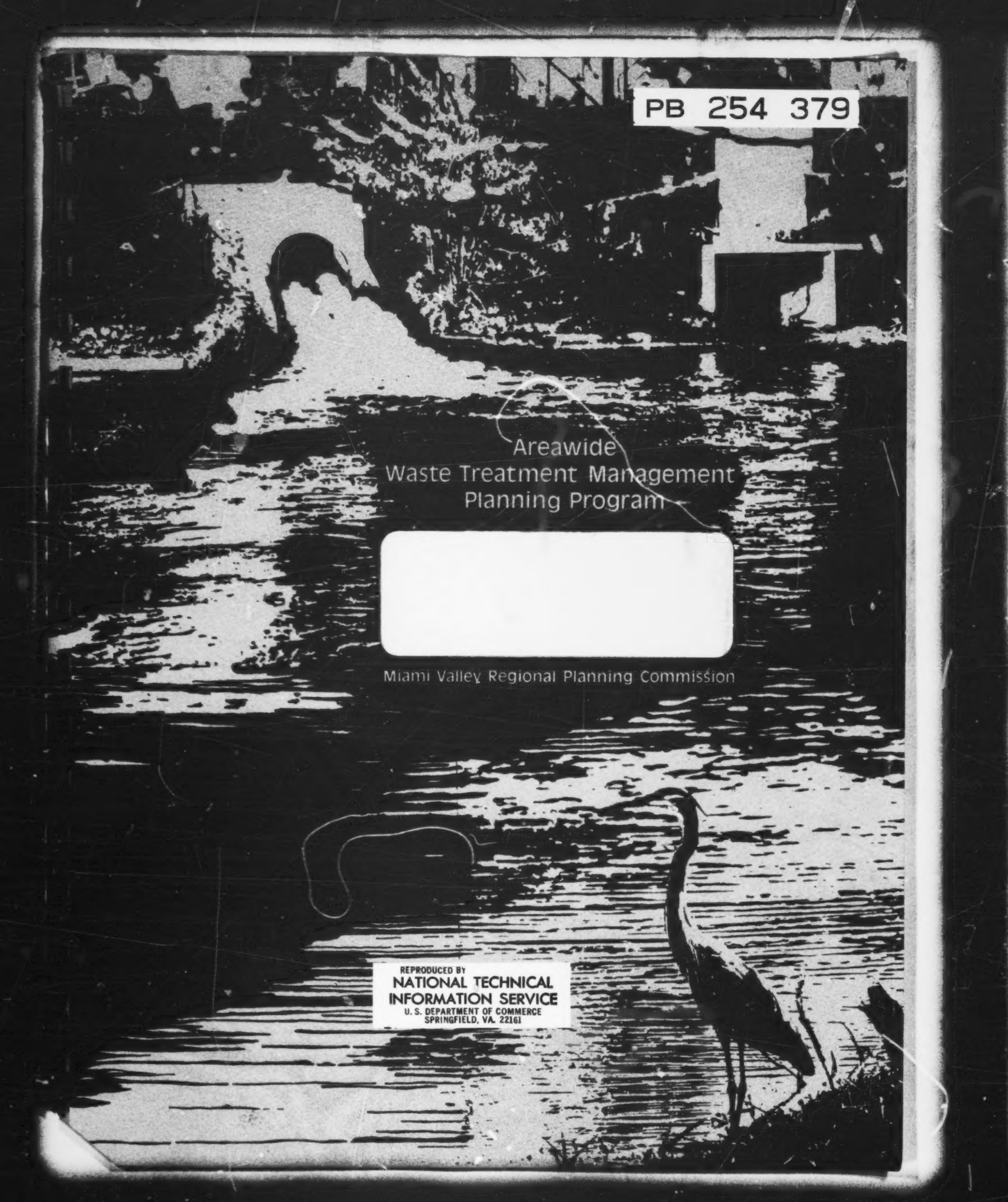
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A REVIEW OF CRITICAL FACTORS IMPACTING REGIONAL
WATER QUALITY MANAGEMENT

MIAMI VALLEY REGIONAL PLANNING COMMISSION

PREPARED FOR
ENVIRONMENTAL PROTECTION AGENCY

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Areawide
Waste Treatment Management
Planning Program

Miami Valley Regional Planning Commission

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16. Abstracts The critical factors - experience, institutional arrangement, and legal and fiscal capabilities - for water quality management, previously discussed in separate reports, are brought together to describe the existing situation in waste treatment, water supply, land use controls, solid waste, storm water, and flood plain control in the Miami Valley (Ohio) area. The information, presented in a narrative with accompanying tables and matrices, is used in the development of the Section 208 (PL 92-500) Areawide Waste Treatment Management Plan.			
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A REVIEW OF CRITICAL FACTORS
IMPACTING REGIONAL WATER
QUALITY MANAGEMENT

M 8

March, 1976

Miami Valley Regional Planning
Commission
333 West First Street
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Approved by the Water Resources Committee
on February 24, 1976

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PREFACE

This report, A Review of Critical Factors Impacting Regional Water Quality Management, is one of a series of eight reports which together provide background information necessary for the development of the management component of the Section 208 Areawide Water Quality Management Plan and program being developed by the Miami Valley Regional Planning Commission (MVRPC).

In June, 1974, the MVRPC received a two-year grant from the United States Environmental Protection Agency for the purpose of preparing an areawide water quality management plan for the five county region - Darke, Greene, Miami, Montgomery and Preble Counties - as specified under Section 208 of the Federal Water Pollution Control Act Amendments of 1972. In February, 1975, the MVRPC retained the services of Linton and Company, Incorporated to assist in the development of the management component of that plan. Since that time the respective staffs have worked to develop an informational background needed to determine the management alternatives which will fit the technical alternatives selected toward solutions of present and potential water quality problems.

The reader will find that one report may reference one or more reports in this series. Because each report is quite detailed it was felt that referencing another report rather than recapitulating its contents was the wisest course. The other seven reports in this series are:

Experience and Potential for Regional Water Quality Management

Financial Critical Factors Analysis

Legal Critical Factors Analysis

A Review of Regional Agencies Impacting Regional Water Quality Management

A Review of Local Agencies Impacting Regional Water Quality Management

A Review of State Agencies Impacting Regional Water Quality Management

A Review of Federal Programs Impacting Regional Water Quality Management

INTRODUCTION

This report draws together the investigations and evaluations of all earlier reports to identify and discuss the factors that must be addressed by the alternative plans developed in Phase III. For the purpose of discussion, these items are called "critical factors" and are defined as those experiences, legal requirements, institutional realities, and financial considerations that a practicable 208 plan must incorporate to account for the unique characteristics of the planning area.

The activities and products from Phase I were designed to identify existing participants and programs in six functional areas of water quality control:

1. waste treatment
2. water supply
3. land use
4. solid waste disposal
5. storm water control, and
6. flood and flood plain control.

Prior to this report, interviews of local, regional, and state water quality agencies were conducted and summarized; a review of relevant statutes was completed; and an overview of existing institutional arrangements was prepared. In earlier tasks of Phase II this information was analyzed in light of the specific legal requirements of the Federal Water Pollution Control Act Amendments of 1972 (FWPCA), Section 208(c)(2), to determine how well existing conditions fit the authorities and activities required by that section. Assessments of experience and potential in the region, as well as the legal and financial conditions, supplemented the basic information gathered in first part of this 208 management study. This report, an evaluation of the critical factors for management, will provide a basis for developing alternative plans to deal with the pollution problems identified by the technical study team.

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THE MIAMI VALLEY REGION -- CONTROLLED URBANIZATION

The critical factors identified in this report are based on the concept that the region consists of an urban core surrounded by a nonurban expanse roughly five times larger than the core. Economic activity and regional population center on the core. Metropolitan Dayton, much of Montgomery County, and portions of Greene and Miami Counties comprise the urbanized core of region (Table I). Approximately 81 percent of the region's population lives within the boundaries of the core; 96 percent of the region's labor force is employed there (Table 2). In an earlier regional plan¹, the recommendations of which were adopted by the Miami Valley Regional Planning Commission, future development is encouraged to follow a "Controlled Trends" concept which foresees a gradual expansion of the size and density of the core. Expansion will not, however, overwhelm the nonurban areas of the region (Table 3). Distinguishing between the urban and nonurban portions of the region helps identify different critical factors within each portion for a given pollution problem.²

¹"Alternatives for the Future," published in August of 1973, is a description of the general guidelines for regional development through the year 2000. Three precursory reports were also published: "A Time for Decision," "State of the Region II," and "Guidelines for Action."

²See Appendix "A" for a short explanation of "Controlled Trends" and the other alternative development scenarios investigated by MVRPC.

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TABLE I: URBAN AND RURAL POPULATIONS IN THE REGION*

	1960		1970	
<u>Darke County</u>	<u>People</u>	<u>Percent</u>	<u>People</u>	<u>Percent</u>
urban	10,581	23.2	12,383	25.2
rural	35,031	76.8	36,758	74.8
total	45,612	100.0	49,141	100.0
<u>Greene County</u>				
urban	63,599	67.2	90,916	72.7
rural	31,043	32.8	34,141	22.2
total	94,642	100.0	125,057	100.0
<u>Miami County</u>				
urban	40,009	55.0	49,340	58.5
rural	32,892	45.0	35,002	41.5
total	72,901	100.0	84,342	100.0
<u>Montgomery County</u>				
urban	475,426	90.2	557,914	91.7
rural	51,654	9.8	50,499	8.3
total	527,080	100.0	608,413	100.0
<u>Preble County</u>				
urban	5,037	15.5	6,145	17.7
rural	27,061	84.5	28,574	82.3
total	32,498	100.0	34,719	100.0

*The 1970 U.S. Census definitions of "urban" "rural-farm," and "rural-nonfarm" apply to the Miami Valley in the following manner:

Urban - The urban population consists of persons living in the Dayton urbanized area (the central city and surrounding closely settled incorporated and unincorporated territory) or persons living in incorporated places with 2,500 inhabitants or more.

The population not classified as "urban" constitutes the rural population.

Rural Farm - All rural residents living on places of 10 or more acres from which sales of farm products amounted to \$50 or more in 1969 or on places of less than 10 acres from which sales of farm products amounted to \$250 or more in 1969.

Rural-Nonfarm - All of the rural residents who were not classified as "rural-farm," including persons living in group quarters on institutional grounds or in summer camps or motels.

TABLE 2: NON-AGRICULTURAL EMPLOYMENT FOR THE REGION

<u>Counties</u>	<u>1960 Number of Employees</u>	<u>% Share</u>	<u>1970 Number of Employees</u>	<u>% Share</u>	<u>% Change</u>
Darke	6,255	3.2	7,493	3.0	19.8
Greene	7,821	4.1	11,887	4.7	52.0
Miami	15,810	8.2	20,813	8.3	31.6
Montgomery	160,085	83.3	205,404	82.5	28.3
Preble	2,299	1.2	3,664	1.5	59.4
Miami Valley Region Total	192,270	100.0	249,261	100.0	29.6

Source: Ohio Bureau of Employment Services Division of Research and Statistics, Employment, Payroll, and Earnings under the Ohio Employment Compensation Law, 1943-1971 (1971).

TABLE 3: PROJECTED POPULATION BY COUNTY, 1970-2000

	<u>1970*</u>	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>
Darke Co.	49,141	52,300	56,800	64,100	70,800	75,100	83,300
Greene Co.	125,057	127,300	140,482	154,684	164,654	172,655	181,304
Miami Co.	84,342	89,200	95,400	103,300	116,800	120,100	128,800
Montgomery Co.	608,413	591,700	644,818	701,216	737,246	763,645	792,196
Preble Co.	34,719	37,200	39,000	41,400	44,400	47,500	50,400
Miami Valley Region Total	901,672	897,700	976,500	1,064,700	1,133,900	1,179,000	1,236,000

*April 1, 1970, count or amended count by U.S. Bureau of Census. All other figures are MVRPC estimates or forecasts for July 1, of the year indicated.

THE CRITICAL FACTORS OF EXPERIENCE

In this first section, how well developed is the operational experience among local agencies is examined for each of the six program areas. Emphasis has been placed on: 1) the level at which knowledge and capability are most extensive, 2) the agencies at each level with experience, 3) whether agencies have gained their experience through independent or cooperative ventures, and in some cases, 4) areas in which there is a lack of experience.

Waste Treatment:

The counties and municipalities that make up the region's core operate extensive sewerage and sewage treatment systems (Table 4). The technical and administrative experience of the agencies involved represents an extremely valuable management resource. The three major governmental units -- the city of Dayton, Greene County, and Montgomery County -- have the power, authority, and experience to operate independently within their jurisdictions in the extension and improvement of their treatment plants and sewerage systems. This independence will be a critical factor in any plan developed.

Not all extensions have been competitive ones; however, major suppliers in the Dayton metropolitan area have tended to employ contractual agreements between local governments as the principle means of expanding a service area cooperatively. For example, Dayton has a service contract with Montgomery County; Montgomery County, in turn, has agreements with Greene County. The contracts negotiated thus far demonstrate the willingness of different actors to cooperate whenever it is mutually beneficial.

The decision to enter into contract is determined, to a certain degree, by the natural drainage patterns in the metropolitan area. When drainage lines divide a municipality's or unincorporated area's population, it may be more economical for the government to contract with another entity whose lines and plant already service a given basin than to pump the sewage from one basin to another. The preference for independent action has not always resulted in cooperative expansion; differences between major suppliers have arisen where one entity gains the right to serve an area at the expense of another.

TABLE 4: SEWAGE TREATMENT SERVICE IN THE URBAN CORE BY COUNTY

	<u>County Service</u>	<u>Municipal Service</u>	<u>Private Service</u>	<u>Percent Served*</u>
Greene	28,250	65,900	0	64.6%
Miami	0	54,275	0	59.0%
Montgomery	121,000	439,865	36,000	83.2%
Total	149,250	560,040	36,000	
Total as percent of 3 - county 1975 population estimates	16.4%	61.4%	4.9%	

In all 82.7 percent of the three - county population receives sewage treatment service. This is a little over 71 percent of the entire number of people served by county, municipal, or private utilities in the region.

*Figures rounded to the nearest tenth of a percent.

A second important indicator of the level of cooperation now existing in the region is the facility planning efforts to determine whether improving some of the smaller municipal facilities would be more cost-effective than tying into one of the larger systems, such as that of Dayton or Montgomery County.

Population and economic trends indicate that strong growth in the urban area will continue, and the demand for sewer service will accompany that growth, particularly on the developing periphery. Therefore, there will be continued demand for the agencies in the area to expand service levels and capacities, as well as to increase treatment levels to meet state and federal requirements. At present, a little over 76 percent of the region's population is served by one of the county, municipal, or private treatment plants operating in the region (Table 5).

The critical questions of experience pertaining to the nonurban portion of the region (basically Darke and Preble Counties) are different. All plants over one million gallons per day (mgd) are owned by municipalities, and treatment in the nonurban area is provided to just over one-third of the total population (Table 6). The service areas, however, are scattered throughout the two counties and separated by large areas served only by septic tanks (Table 7). Thus, operational experience has so far been restricted to the local, rather than the areawide, level. But lack of higher level experience need not be considered a limiting factor, since the forces of urbanization have worked much more slowly in Darke and Preble Counties than in the greater Dayton metropolitan area. Demographic projections in the "Controlled Trends" scenario indicate that the rate of development is unlikely to increase dramatically.

What is critical to the waste treatment needs of the two counties is the lack of regional experience in dealing with possible pollution problems arising from inefficient septic tank operation. Before the initiation of 208 planning in the region, there were no comprehensive assessments of the impact of septic tanks on regional water quality. County health departments have the authority to inspect systems at the time of installation and periodically over their operable life, but budget constraints have so far made it impossible for the departments to do more than respond to individual complaints or calls for assistance when a system breaks down. Should the technical study team determine that ground and surface water quality are seriously affected by septic systems, considerable thought will have to be given to new programs regulating use.

TABLE 5: SEWAGE TREATMENT SERVICE IN THE REGION BY COUNTY

A. Population Served

	<u>County Service</u>	<u>Municipal Service</u>	<u>Private Service</u>	<u>Self Service</u>
Darke	0	19,600	0	29,541
Greene	28,250	65,900	0	30,907
Miami	0	54,275	0	30,067
Montgomery	121,000	439,865	36,000	11,548
Preble	0	12,245	0	22,474
Percent of total population served by agency:	15.0%*	59.1	3.6	12.4

B. Number of Service Agencies

	<u>County</u>	<u>Municipal</u>	<u>Private</u>
Darke	0	5	0
Greene	3	6	0
Miami	0	7	0
Montgomery	3	10	1
Preble	0	5	0

*Figures rounded to the nearest tenth of a percent

TABLE 6: SEWAGE TREATMENT SERVICE IN THE NONURBAN
COUNTIES BY COUNTY AND SERVICE AGENCY

	<u>County Service</u>	<u>Municipal Service</u>	<u>Private Service</u>	<u>Percent Served¹</u>
Darke	0	19,600	0	37.1%
Preble	0	12,245	0	33.5%

The total, two - county population estimate for 1975 is 89,366. Of this number, 35.6 percent are currently served by municipalities in the counties.

¹These calculations are based on population estimates for 1975. The estimates, in turn, are projections to the year 1975 from 1970. Census Bureau figures computed by the Battelle Memorial Institute Columbus, Ohio Laboratories. See Table 3 for complete list.

TABLE 7: UNSERVED POPULATION IN THE NONURBAN COUNTIES

	<u>Unserved</u>	<u>Percent</u> ¹
Darke	33,258	63.0%
Preble	24,263	66.5%
Total	57,521	64.4%

¹These calculations are based on actual service figures provided by MVRPC and estimated population figures computed by Battelle Memorial Institute, Columbus, Ohio Laboratories for MVRPC's publication, State of the Region II, April, 1973.

Water Supply:

Although not dealt with directly in Section 208(c)(2), water supply systems will be included in the planning process because the availability and costs of upgrading raw water to potable standards is directly influenced by the quantity and quality of the supply. All but two of the supply systems serving the region draw raw water from underground aquifers in the Miami Valley. The supply is vast, but not unlimited, and shortages have already been reported in some areas of the region.¹ To safeguard the supply and to extend it, regional needs will have to be anticipated and planned for.

In this program area, as in waste treatment, the largest systems are operated by Dayton, Montgomery County, and the other municipalities in the urban core (Table 8). Again, the critical factors, are: 1) the independence with which these agencies operate; 2) the preference for individual service contracts over joint ventures as the best way to expand service areas; and 3) the rate of increased demand due to domestic and industrial expansion.

Land Use:

Under the general heading of "land use" are a number of different regulatory measures that can be adapted to include water quality issues. Levels of experience within the region vary according to the type of land use control examined; in most governmental units, concern with water quality problems has been a secondary issue, subordinate to that of orderly, patterned urban development. As such, there is a general lack of experience in actually applying land use controls to realize water quality objectives.²

The authority to impose land use controls is required under Section 208(c)(2)(A) of the FWPCA, which mandates that a management agency have the authority "to carry out appropriate portions of an areawide waste treatment management plan developed under Section 208(b)." Specifically, land use powers are required to satisfy the terms of Section 208(b)(2)(C)(ii) and Section 208(b)(2)(F)-(H), which deal with the control of nonpoint sources of pollution. Potential mechanisms for land use control include, but are not limited to, the following:

¹"State of the Region II," MVRPC; May, 1973; p. 16.

²See the Glossary for definitions and examples of the various controls discussed in this section.

TABLE 8: WATER SUPPLY SERVICE IN THE REGION BY COUNTY

Population Served

	<u>County Service</u>	<u>Municipal Service</u>	<u>Private Service</u>	<u>Percent Served*</u>
Darke	0	21,600	0	40.9% ¹
Greene ²	5,510	69,460	3,150	51.4%
Miami	0	54,480	0	59.2%
Montgomery	120,000	444,490	30,080	88.2%
Preble	0	15,650	180	43.4%

*Figures are rounded to the nearest tenth of a percent.

¹Percentages were calculated using actual service populations and projected county populations based on computations done for Miami Valley Regional Planning Commission by Battelle Memorial Institute, Columbus, Ohio Laboratories from the 1970 U.S. Census Bureau data.

²The Greene County figures do not include seasonal service to Central State University with a population of 3,000. Water is supplied by a State-operated facility.

- .Conventional zoning
- .Subdivision regulations
- .Controlled sequential development
- .PUDs and related development controls
- .Wetland preservation
- .Flood plain regulations
- .Performance standards
- .Development rights transfer
- .Special regulations
- .Run-off limitations
- .Service charge mechanisms
- .Land banking
- .Utility extension policies
- .Utility pricing policies
- .Tax policies
- .State or regional prerogative
- .Compensable regulation
- .Agricultural control mechanisms

The traditional practice of dividing a jurisdiction into mapped zones or districts, each subject to a different but uniform set of regulations, is widely exercised in the Miami Valley region (Table 9). At the county level, Miami, Montgomery, and Preble Counties have enacted zoning ordinances. In Darke and Greene Counties, the townships have taken the initiative in drawing up their own controls. At the municipal level, all but the smallest villages have adopted their own zoning laws.

Under Ohio law, counties, townships, and municipalities may adopt zoning ordinances and maps. County zoning does not necessarily mean blanket imposition of zoning in unincorporated areas. If township zoning existed prior to the adoption of county zoning, the township ordinance shall take precedence unless the township's residents vote to have the county ordinance replace the existing township one. Conversely, if a township's residents have adopted a county zoning ordinance, they must, by a majority in the zoned area, vote to replace a county ordinance with a township one. A township may elect to remain unzoned. Similarly, a municipality is not obliged to impose zoning on itself or to follow the county ordinance.

Subdivision regulations and "planned unit development" (PUD) are additional types of development controls that have been added to traditional zoning ordinances by various governments in the region. The total number of jurisdictions incorporating these mechanisms into their local codes are indicated in Table 9.

TABLE 9: LAND USE CONTROLS IN THE REGION BY POLITICAL SUBDIVISION

	Regional		Regional		Counties	Cities & Town-		Comments
	State- wide	or Special Districts	Districts	Villages		ships		
Conventional zoning	-	-	-	36	3	58		
Subdivision regulations	-	-	-	34	5	65		
Controlled sequential development	-	-	-	-	-	-		
PUDs related development	-	-	-	15	2	33		
Wetland preservation	-	-	-	-	-	-		
Flood plain regulations	-	-	1*	21	2	41		*MCD
Performance standards	-	-	1*	3	-	1		*RAPCA
Development rights transfer	-	-	-	-	-	-		
Special regulations	-	-	-	-	-	-		
Run-off limitations	-	-	-	1*	-	-		City of Englewood Sediment Control
Service charge mechanisms	-	-	-	-	-	-		
Land banking	-	-	-	-	-	-		
Utility extension policies	-	-	-	1	-	-		
Utility pricing policies	-	-	-	4	-	-		
Tax policies	-	-	-	-	-	-		
State or regional prerogative	-	-	5*	-	-	-		*MVRPC, TCC RAPCA, HPC, MCD
Compensable regulation	-	-	1*	-	-	-		*MCD
Agricultural control mechanisms	-	-	1*	-	-	-		
crop rotation	-	-	1	-	-	-		*SCS on a voluntary basis only
ground cover maintenance	-	-	1	-	-	-		
contour plowing	-	-	1	-	-	-		

As with zoning ordinances, counties and municipalities have a choice under Ohio law as to whether they adopt subdivision regulations. As provided by the ORC Section 711.09, cities and villages may exercise extra-territorial review, but no veto, powers over subdivisions in unincorporated areas. A city may employ this power up to three miles from its corporate limits; a village up to one and one-half miles. Exercising this power depends upon the adoption of a major thoroughfare and park plan by the city or village planning commission. In the Miami Valley region, all five counties and most of the municipalities, except the smallest villages, have adopted subdivision regulations. Experience in their administration is well-developed; however, their use to accomplish water quality objectives is limited primarily to runoff control during construction.

The MVRPC and TCC periodically review subdivision design proposals at the request of local officials or through the A-95 review process when a developer is seeking federal assistance for a housing project.

Planned unit development (PUD) mechanisms have been adopted in some communities as part of their traditional zoning codes, but there is only one report that a PUD has been used to regulate new development. The New Community District provision in the Montgomery County, Madison Township, and the City of Trotwood zoning regulations is essentially a mechanism for accommodating a large planned unit development. It was explicitly tailored to meet the needs posed by Newfields, the Title VII new community located in northwest Montgomery County. Experience in the actual use of the PUD is minimal and is therefore a factor in determining the feasibility of incorporating PUD concepts in future plans for the region. It is apparent that incorporation of PUD zoning into traditional zoning codes throughout the region is becoming more widespread as shown in Table 9, but its application requires a reasonably high degree of technical experience. Lack of appropriate experience, particularly with respect to site plan review, as well as lack of necessary institutional structure to carry an added work load required by such review, generally can serve to prolong and delay the development process. Although delay may be a desirable mechanism in controlling haphazard and unplanned development, it serves to contradict the effectiveness of the PUD ordinance by making such a development process more difficult than traditional programs. Unless benefits attributable to mixed-use, planned development under a PUD-type ordinance are greater than the costs of delay associated with a longer, more difficult approval process, future application of the PUD zone will be limited.

A third adaptation of conventional zoning ordinances is the inclusion of performance standards as a substitute for the usual generic types of classification, e.g. light and heavy manufacturing districts. The "performance standard" concept has been extended to include water quality considerations, and some municipalities in the region have incorporated such standards in their ordinances and regulations as indicated in Table 9. Using them requires highly qualified technicians to evaluate developer proposals, and there is no indication that experience with performance standards is widespread. Again, the lack of an effective institutional system for implementing a complex ordinance undercuts its potential effectiveness.

A number of Miami Valley communities - Dayton, Kettering, Miami Township in Montgomery County, and Centerville - have performance standards incorporated into their zoning ordinances. Air pollution performance standards are enforced on a regional level by the Regional Air Pollution Control Agency (RAPCA). These particular standards are not part of any zoning ordinance but, rather, are dictated by federal and state laws and regulations.

Development rights transfer, service charge mechanisms, controlled sequential development, and land banking constitute a set of more innovative land use controls that have not been experimented within the Miami Valley region. The process of development rights transfer has most often been applied in the preservation of landmark structures or possibly in the preservation of historic districts. Its potential application with respect to water quality considerations may be in the control of density distributions as a function of water quality problems. In New York City, for example, development rights transfer has been used to preserve landmark structures by permitting the transfer of authorized but unbuilt density to adjacent property owners, thus compensating the owner of the landmark and reducing the pressure on him to demolish the structure. Another development rights transfer system, called the "Chicago plan," advocates the transfer of rights over landmarks within districts rather than to adjacent property owners. Similar proposals have been made in the historic area of Georgetown in Washington, D.C., in an attempt to preserve the low density characteristics of the entire area. A proposed New Jersey approach would authorize the transfer of development rights for undeveloped land to other land in accordance with a land use plan for an entire jurisdiction. The owners of preserved open space are compensated for their deprivation of use by the sale of development rights for undeveloped land to other land in accordance

with a land use plan for an entire jurisdiction. The owners of preserved open space are compensated for their deprivation of use by the sale of development rights to other land owners who would have to purchase these rights as a prerequisite to development. The proposed New Jersey approach holds a great deal of promise for conserving prime agricultural land and ecologically sensitive areas. This approach also has the potential for application to water quality considerations by offering an opportunity for removing development pressures from those areas where continued development would have measurable negative impact on regional or local water quality. There is no jurisdiction in Ohio with experience in development rights transfer. As a result, there is no currently operative institutional mechanism for applying such techniques to water quality problems.

Controlled sequential development, such as the development timing ordinance upheld by the New York Court of Appeals in Golden v Planning Board of Town of Ramapo, 30 N.Y. 2d 359, 285 N.E. 2d 291 (1972), has a specific purpose of directing growth into those areas within a defined region at a pace that does not exceed a local government's financial and physical ability to provide necessary public facilities and services, including provision of waste treatment facilities. Development of an area is allowed only when capital improvements are scheduled to reach that area or when the developer agrees to install them. Where a land use plan underlies the timing scheme, particularly a land use plan that takes into account water quality management concerns in a given region, sequential development control may curtail urban sprawl and possibly release ecologically sensitive areas from development pressures. As with development transfer rights, however, no Miami Valley community has experimented with any form of development timing controls. Indeed there are no reports of such activity elsewhere in Ohio.

Another mechanism to control the direction of future growth in a region is land banking. Proponents of land banking generally argue that it will reduce the cost of land through the elimination of land speculation and that it will permit rational, efficiently served patterns of development rather than urban sprawl. Implications with respect to water quality management programs on a regional scale are significant; however, there is no experience with land banking in Ohio. The only application of the technique has been in Puerto Rico.

In the area of special regulations relating to water quality management, one municipality in the Miami Valley region has adopted a sedimentation control ordinance to reduce the threat of erosion from construction-related run-off. Adopted by the City of Englewood in 1973, the ordinance contains a number of on-site detention methods and guidelines for their application, as well as the stipulation that a performance bond must be posted in cash prior to any construction starts. No other community has reported using this kind of land use control mechanism to date.

Utility extension policies can be considered a form of land use control. Demands for sewer and water service by communities on the edge of urban areas sometimes result in annexations to the servicing municipality and subsequent intensification of urban development. When annexation is a prerequisite for service, an extension policy is being used. Dayton, for example, used such a policy to enlarge its corporate boundaries.

Pricing policies can accomplish the same end if the charge for extended service, either sewer or water, is high enough to induce landowners in unincorporated areas to annex their land to the servicing municipality. Municipalities (or counties) justify the price differential by arguing that they receive no additional tax revenues, property or otherwise, from service areas outside their corporate limits and that the added charge compensates for this. Again, Dayton provides sewer and water service to Montgomery County municipalities and portions of certain township with which it has contractual agreements. The charge is 125 percent of the fee paid by city residents. Yellow Springs charges outside customers 150 percent. While differential pricing policies are a common practice in the Miami Valley region, not all treatment agencies employ them. The city of Piqua, for example, charges the same rate to all its customers.

A preferential use valuation/deferred taxation device has been adopted in Ohio. As a form of land use control, the program permits a taxing jurisdiction to assess agricultural land on its value as agricultural land, not on its speculative or market value for development. When the landowner sells the land or changes its use to a more profitable one, the jurisdiction can collect what the landowner saved in taxes over a specified number of years. This allows a farmer on an urban fringe to continue farming rather than be forced to succumb to the encroachment of urban development because of high taxes. The Ohio law is not, however, tied to any planning process which

identifies prime agricultural land. In addition, the law tends to decrease the earnings of those jurisdictions which rely on the property tax for their main source of revenue, such as townships and school districts. As a result, any proposed management program incorporating preferential taxing policies must include components to offset problems in alternate tax revenue needs and to establish a planning base for the implementation of such programs. To date there are no reports that it has been used in the region to guide development or to enhance water quality.

An alternative method to either outright acquisition of property or attempts to guide the use of property through taxation policies is the use of conservation easements. A conservation easement is a right running in favor of the government which requires a landowner to restrict the use and development of his land in certain specified ways. The government purchases this right from the landowner who continues to have all rights in his property except those specified in the easement document.

There are two general forms of conservation easements, positive and negative. The positive easement provides the public with the right to make some specified use of private property, such as right of access for hiking or fishing. The negative easement restricts the landowner from making certain uses of his land, such as dumping refuse, erecting or altering certain structures, erecting signs and billboards and cutting trees, shrubs and brush. In terms of water-quality-related actions, conservation easements can also be established to maintain flood drainage courses or to protect potential aquifer recharge areas for supplementing underground water supply.

Three governments in the region employ one form or another of conservation easement. At the local level, Yellow Springs purchases easements along Jacoby Creek to establish a green belt through the village. Regionally, MCD has brought land above its dams and resold it encumbered with flood control easements. The Ohio Department of Natural Resources purchases scenic easements along state-designated scenic rivers, one of which is the Little Miami in Greene County. These easements form corridors which connect with park areas. Thus, there is a reasonable degree of experience with using easements in the region.

A major step beyond conservation easements has been taken by several other states by the enactment of laws to

preserve wetland areas. Wetlands preservation is a review and permit granting process governing damming, filling, dredging, waste discharge, land use practices and pesticide use in order to protect wetland areas, such as marine grass beds, tidal marshes, fresh water swamps, and shell fish waters. Protection is a function both in terms of flood control and water pollution control.

There currently is no wetlands preservation activity in the Miami Valley region. Indeed Ohio does not have a wetlands preservation law by which it may regulate development of the type described. Under these conditions there is no institutional structure to implement wetland preservation or control measures explicitly.

Certain agricultural control mechanisms have been developed that significantly reduce the hazards of pollution from farmland runoff. These include: 1) crop rotation, 2) ground cover maintenance, 3) and contour plowing and tilling. Although farmers in the region know of these different methods, there is no formal program in the Miami Valley for applying any of them.

A majority of local governments have building codes and building inspection departments. A building code is a set of standards and criteria pertaining to the erection, construction, repair, maintenance, and alteration of buildings and structures designed to insure the safety of persons using them. Building codes can be related to water quality concerns and land use control as provisions are included in them, for example, to regulate downspout and drain connections to storm and sanitary sewers, or to specify rooftop detention criteria for temporary storage of storm water. Adequately enforced, building code provisions may contribute to changing development patterns. For this reason they are included here.

In Ohio, the State Board of Building Standards administers regulations for all classes of buildings except one, two, and three family dwelling units. Municipalities may adopt a building code where its provisions are not in conflict with those of the state. Unless the building inspection department is certified by the State Board of Building Standards, the municipality must limit its inspection authority to the family dwelling units mentioned above, plus private garages and carports. A certified local department can exercise enforcement authority over all building types. Counties may exercise the same powers, subject to the same conditions.

Solid Wastes:

The rubric of solid waste disposal covers refuse and garbage collection, incineration, landfilling, and sludge disposal procedures. Regional experience with different programs in this category is greatest on the county-wide level in the area of planning. Montgomery County has received a \$77,000 U.S. EPA grant to underwrite part of the planning costs for a resource recovery plant that will include sophisticated solid waste disposal facilities. Greene County is actively investigating the advantages of resource recovery. Miami and Preble Counties' planning efforts are limited to the design and siting of sanitary landfills within their own jurisdictions. Of the five, Montgomery County is the only one with the resources to support a full-time staff responsible for solid waste control. Budget and staff restrictions have made it difficult for Greene, Miami, and Preble Counties to follow suit.

Montgomery, Greene, and Miami Counties have additional experience in planning, operating, and regulating collection, landfill, and incinerator facilities (Table 10). All three require permits of private collectors and disposal site operators. County health departments have the responsibility for monitoring and testing the efficiency of disposal operations; they do so as time and money permit.

The Franklin Environmental Control Complex, located outside the region in Butler County, serves some communities in the 208 area. MCD owns and operates the Franklin Complex and may extend coverage to include the Clear Creek and Twin Creek Basins including the Miami Valley communities of Germantown and Carlisle. Solid waste operations at the complex are actually owned by the City of Franklin. Miami County plans to develop a contractual agreement to deliver wastes from the county to the complex.

Considerable experience with conventional refuse and garbage disposal programs also exists at the municipal level. Seventeen cities and villages have collection systems; seven own disposal sites; only four have both collection systems and disposal operations (Table 10). Dayton, Fairborn, and Xenia have limited staffs and rely on consultants for assistance. A variety of townships and municipalities have ordinances regulating the disposal, collection, and storage of municipal solid wastes (Table 11).

Private collection and disposal operations make up an important element of the total solid waste handling complex. There are approximately fifty licensed firms and four privately operated disposal sites in the region handling municipal wastes.

TABLE 10(A) SOLID WASTE DISPOSAL SERVICE IN THE REGION
BY GOVERNMENT AND PROGRAM TYPE

	<u>County</u>	<u>Municipalities</u>	<u>Private*</u>
Collection	0	17	
Disposal	4	7	
Collection & Disposal	0	4	

*Exact figures not available

TABLE 10(B) SOLID WASTE DISPOSAL IN THE REGION BY
POLITICAL SUBDIVISION AND PROGRAM TYPE

	a. State	b. Regional or special District	c. County	d. Municipal	e. Township
1. Planning	1	1	4	3	NA
2. Design	1	NA	4	3	NA
3. Construction	1	NA	4	3	NA
4. O&M	2	-	4	20	4
5. Regulations	1	1	5	28	

Explanations:

1 - Planning

- 1a - The OEPA provides technical assistance to local agencies and municipalities on request. The OEPA is now drafting statewide legislation and a statewide plan for solid waste disposal.
- 1b - The MVRPC is developing a regional solid waste treatment plan as a broad policy statement for public officials.
- 1c - Montgomery County. The county sanitary engineer's office is currently doing solid waste management planning. Several staff members are involved in developing a plan which calls for the use of resource recovery. The county has received a \$77,000 grant to assist in planning for this eventuality from USEPA.

Greene County. The county sanitary engineer's office is currently doing solid waste planning on a limited scale. As part of this process resource recovery technologies are being reviewed and considered.

Miami County. The county sanitary engineer's office does some solid waste planning. A plan is being devised to ship wastes from the present incinerator site to the Black-Clawson Resource Recovery Plant in Franklin, Ohio.

TABLE 10 (CONT'D)

Preble County. Solid waste planning is conducted by the county engineer's office. This function is very limited and is primarily oriented to planning for the operation of the one county-owned landfill.

- 1d - Dayton. The city conducts a variety of planning activities, especially in relationship to its large municipally-owned collection fleet. This work is conducted by the city engineer's office. Some planning activities are conducted concerning the city's sanitary landfill.

Xenia. The city conducts solid waste planning in regards to its collection system and its city-owned sanitary landfill. The function is carried out by the city engineer's office.

Fairborn. The city has limited solid waste planning function. It is in the process of developing a solid waste plan which may possibly incorporate resource recovery.

2 - Design

- 2a - OEPA. The agency gives technical assistance to those designing facilities. Also, it has developed standards for disposal sites under its regulatory process.

2b - Not applicable

- 2c - The Montgomery, Greene, and Miami County sanitary engineer's offices have done design work in regards to disposal facilities. Only the Montgomery County office has major staff resources. In Preble County, the county engineer's office does some limited design work in regards to its landfill.

- 2d - The cities of Dayton, Xenia, and Fairborn have done some design work relative to sanitary landfills. Xenia and Fairborn have limited staffs and rely on consultants for assistance.

2e - Not applicable

3 - Construction

- 3a - The OEPA gives technical assistance to local governments on request, but does no actual construction itself.

3b - Not applicable

TABLE 10 (CONT'D)

- 3c - Greene, Miami, Montgomery, and Preble Counties all have some landfill-related construction responsibilities.
- 3d - The cities of Dayton, Fairborn, and Xenia have limited construction programs related to their disposal operation.
- 3e - Not applicable
- 4 - Operation and Maintenance
- 4a - The OEPA is responsible for a statewide monitoring system of all disposal sites. Ohio Department of Health (ODH) provides some advice on storage problems.
- 4b - Not applicable
- 4c - Greene and Preble Counties own and operate landfills. Montgomery and Miami Counties operate incinerators and landfills for the incinerator ash and residue.
- 4d - Three municipalities operate their own disposal sites: Ansonia, Greenville, and New Madison in Darke County. Four municipalities have their own collection and disposal systems: Cedarville, Fairborn, Dayton, and Xenia. Thirteen other municipalities run their own collection systems but use an outside disposal site.
- 4e - Three Darke County townships and one Preble County township operate their own landfills (Liberty, Neave, and Washington Townships in Darke County; and Monroe Township in Preble County).
- 5 - Regulation
- 5a - The OEPA performs a regulatory function by permitting all municipal waste disposal sites in Ohio. In many cases this is accomplished in close cooperation with individual county health departments.
- 5b - The RAPCA monitors air quality in the region and is responsible for checking point sources, e.g., like incinerators.
- 5c - All five county health departments enforce state and local codes and ordinances to control possible health hazards resulting from improper disposal operation. Greene, Miami, and Montgomery Counties require permits of collection and disposal site operators.

TABLE 10 (CONT'D)

- 5d - Twenty-four municipalities have ordinances concerning collection, storage, disposal, or some combination of the three areas.
- 5e - Four townships in the region have their own regulation. The rest, as unincorporated portions of their respective counties, are subject to county regulation.

TABLE 11: MUNICIPAL CODES AND ORDINANCES FOR
SOLID WASTE DISPOSAL, BY COUNTY

	<u>Disposal</u>	<u>Collection</u>	<u>Storage</u>	<u>None</u>
Darke County	2	2	1	22
Greene County	4	4	3	13
Miami County	7	4	5	12
Montgomery County	8	5	9	17
Preble County	2	1	1	15

Operational experience among the five counties centers on the operation and regulation of refuse and garbage disposal sites. Miami Valley municipalities also have valuable experience in this area. The Franklin Environmental Control Complex has the potential to serve some of the communities in the region and may serve as a model from which the counties can learn more about the economies and advantages of integrated resource recovery.

Stormwater:

Stormwater run-off through agricultural or urban locales can seriously affect water quality by stripping away wastes on the ground and depositing them in receiving waters. Management and control techniques differ according to whether an area is urbanized or not. Regardless of the degree of urbanization, though, conventional methods emphasize rapid drainage and disposal, not necessarily treatment.

Rural stormwater management in the region takes the form of constructing and maintaining drainage ditches to keep roads and farmlands from flooding. The county governments operate the most extensive drainage programs, usually integrating ditch construction with road building. All five counties examined have extensive drainage ditch programs. County residents may petition the board of county commissioners to have additional ditch-digging done in a particular location if they feel the need for extra protection. Once approved, petitions result in new construction, the cost of which is paid for through direct assessment of those who benefit. Counties can contract with any political subdivision to construct and maintain ditches in other jurisdictions. As an illustration of this last point, Preble County is currently completing plans for a storm sewer system for West Alexandria.

Urban stormwater control is the responsibility of the region's municipalities. Most Miami Valley cities and villages have some kind of storm drainage system to rapidly dispose of rain and melted snow. For example, the cities of Dayton, Greenville, and Piqua and the village of Yellow Springs all have "separate" sewer systems to handle runoff. Separate systems help reduce the possibility of combined sewer overflow and back-ups, even though they do nothing to treat stormwater. Physical controls aside, the only non-structural management technique being used at the present time is Englewood's sediment control ordinances discussed in the previous land use section.

The extent to which stormwater is a water quality problem in the region remains relatively unknown. Small-scale sampling and analysis of urban stormwater quality has been done for Dayton. Results indicate that, at some outfalls, stormwater rivals untreated domestic sewage in its effect on the region's receiving waters. Should the technical team determine that both urban and agricultural runoff need controlling in order for the region to meet its goals, county and municipal inexperience in administering large-scale drainage programs for quality control will have to be accounted for in any plan developed.

Flood Control:

Regional flood control programs combining structural and non-structural measures have long been the responsibility of the Miami Conservancy District (MCD). The District's jurisdiction includes the major flood plains in the region and, therefore, covers significant amounts of land in Miami and Montgomery Counties, smaller amounts in Preble County, a small corner of Greene County, and no land in Darke County. MCD administers whatever rules and regulations it determines are necessary for the protection of its facilities. The District also oversees several beneficial uses derived from its facilities, particularly public recreation areas. Future plans for flood control and flood plain management will have to consider MCD's experience and authority in this field as a critical factor.

Smaller reaches of rivers, streams, and creeks in the region, especially in heavily urbanized or urbanizing stream and creeksheds, are sometimes susceptible to flash flooding. Experience with flood control at this level is confined mainly to the administration of flood plain restrictions in the zoning ordinances of counties, municipalities, and townships or through the purchasing of conservation easements by MCD and the village of Yellow Springs. Miami and Preble Counties have such restriction in their zoning laws; Greene and Montgomery Counties do not; Darke County has no formally adopted laws as yet. Flood plain restrictions are a part of the zoning laws in 27 townships and 14 cities and villages (Table 12). There is no collected information on the degree to which these restrictions are a factor in zoning decisions.

TABLE 12: MUNICIPAL AND TOWNSHIP FLOODPLAIN REGULATIONS, BY COUNTY

	<u>MUNICIPALITIES</u>		<u>TOWNSHIPS</u>	
	<u>With</u>	<u>Without</u>	<u>With</u>	<u>Without</u>
Darke	4	17	4	15
Greene	3	6	10	2
Miami	3	8	3	9
Montgomery	7	10	10	2

Summarization of the Critical Factors of Experience

Discussion of the critical factors of experience for each program area has ranged widely. Summarized and presented below are all the factors in a single list.

<u>Program Area</u>	<u>Critical Factors</u>
wastewater treatment	County and municipal service agencies in the urban core have a great deal of operational experience but prefer to work independently of one another unless cooperative agreements are mutually beneficial. Continual monitoring and testing of septic tanks in unsewered portions of the region has not been undertaken; consequently, there is a lack of experience in administering ongoing inspection programs.
water supply	County and municipal service agencies in the urban core have a great deal of operational experience but prefer to work independently of one another unless cooperative agreements are mutually beneficial.
land use	Although conventional zoning and subdivision regulations have long been used by counties and municipalities, there is relatively little widespread experience in applying such controls for water quality management objectives.

Summarization of the Critical Factors of Experience

Program Area

Critical Factors

solid waste

There is a lack of experience in operating large-scale solid waste disposal systems other than dumps and incinerators at the municipal and county level.

Relatively little experience exists in the area of large-scale sludge disposal.

runoff

Major sewage treatment agencies in the urban core are experienced in the operation of separate storm sewer systems for urban runoff disposal.

Storm water control programs for water quality have not been widely adopted; therefore little experience in stormwater treatment exists.

flood control

The MCD has the most experience in managing flood control facilities in the region.

LEGAL CRITICAL FACTORS

It is the purpose of the legal critical factors research* to review, in the light of the purposes and provisions of the Federal Water Pollution Control Act Amendments of 1972 (hereinafter FWPCA or the Act) as explicated in the Guidelines for Areawide Waste Treatment Management Planning (the Guidelines) issued under the FWPCA by the U.S. Environmental Protection Agency (USEPA),

(A) the legal functions, powers, and capacities of governmental units and entities which are, or might be, engaged in water pollution activities in the Miami Valley and

(B) existing and possible institutional arrangements among such units and entities,

for the purpose of assisting the Miami Valley Regional Planning Commission (MVRPC) to identify management agencies and institutional arrangements for designation under Section 208(c) of the FWPCA.

Section 208(b)(2) of the FWPCA requires that the plan to be prepared include, in addition to the identification of treatment works necessary to meet anticipated waste treatment needs of the area and proposed financing thereof, the establishment of priorities and time schedules, therefore, the establishment of a regulatory program for implementation of the plan, identification of pollutants, and the like,

"(D) the identification of those agencies necessary to construct, operate, and maintain all facilities required by the plan and otherwise to carry out the plan."

Section 208(c)(1) of the FWPCA further requires that the Governor, in consultation with MVRPC (as the designated planning agency), at the time the plan is submitted to the Administrator, designate one or more "waste treatment management agencies" for the area and submit the same to the Administrator. Such designations must be accepted by the Administrator under Section 208(c)(2) unless he finds that the agency or agencies designated do not have adequate authority:

*This essay is based on legal research by Mark A. Gettleston, Esq., who is not a member of the Ohio bar; it is a slightly abbreviated version of the introduction, summary, and conclusions sections to be found in the report, Legal Critical Factors Analysis.

"(A) to carry out appropriate portions of an areawide waste treatment management plan developed under subsection (b) of this section;

"(B) to manage effectively waste treatment works and related facilities serving such area in conformance with any plan required by subsection (b) of this section;

"(C) directly or by contract, to design and construct new works, and to operate and maintain new and existing works as required by any plan developed pursuant to subsection (b) of this section;

"(D) to accept and utilize grants, or other funds from any source, for waste treatment management purposes;

"(E) to raise revenues, including the assessment of waste treatment charges;

"(F) to incur short-and long-term indebtedness;

"(G) to assure in implementation of an areawide waste treatment management plan that each participating community pays its proportionate share of treatment costs;

"(H) to refuse to receive any wastes from any municipality or subdivision thereof, which does not comply with any provisions of an approved plan under this section applicable to such area; and

"(I) to accept for treatment industrial wastes."

Grants under the FWPCAA are limited to such designated agencies for works in conformity with the plan (Section 208(d)).

The Guidelines

The Guidelines were issued by the EPA in August, 1975,

"to assist 208 planning agencies in carrying out their areawide waste management planning responsibilities within designated areas."

The Guidelines (page 1-2) emphasize the importance of developing an "integrated approach" for solving pollution problems and choosing the most effective "management agency and institutional arrangements" to assure implementation of the plan. This is further explained at Section 3.4 of the Guidelines (pages 3-16 and 3-17) as follows:

"The purpose of management planning is to select a management agency or agencies and to develop appropriate institutional arrangements through which the plan can be implemented. Institutional arrangements for areawide waste treatment management are the formal structure of affected state and local units of government for planning and implementing an areawide water quality management plan.

"The Act clearly specifies the responsibilities and functions of the management agency(s). The criteria that should be used to determine whether the management agency(s) can properly carry out these responsibilities are:

adequate legal authority

adequate financial capacity

"The Act does not, however, stipulate what institutional arrangements should be utilized to enable plan implementation. Criteria for evaluating the adequacy of the management agency(s) and institutional arrangements should be:

Practicability--to what extent do institutional arrangements rely on existing water quality management agencies? Are the institutional arrangements politically feasible?

Managerial capacity--to what extent do institutional arrangements provide for program oversight including procedures for resolving conflicts and cooperating with other areawide planning activities?

Public Accountability--to what extent do institutional arrangements provide for a decision-making process accountable to the area electorate?"

The Guidelines (page 3-18) explicitly recognize the need to adopt a "pragmatic strategy" in formulating institutional arrangements, avoiding fragmentations of authority and responsibility.

"The greater the number of agencies involved in implementing the plan, the greater the need to coordinate between the agencies . . .

"The complexity of institutional arrangements should not prevent a clear delineation of the decision-making process used to implement the plan. In particular, there should be an explicit arrangement for ensuring overall supervision and enforcement of the management plan.

In that connection, the Guidelines make it clear (at page 7-13) that MVRPC, as the local A-95 review authority (under OMB Circular A-95 Revised, dated November 13, 1973), must review all applications for grants under the FWPCAA for consistency with areawide plans and other regional concerns.

In discussing the "management planning process" essential to implementation of a plan approved under the FWPCAA, the Guidelines (at page 3-19) suggest a legal analysis of an area's ability to meet the FWPCAA's requirements, an evaluation of existing financial arrangements bearing on the matter, and an assessment of the potential of existing institutions to perform regional water quality management.

"This evaluation should seek to assess the effectiveness of the regional management to date and the strength of the area's traditions and commitment to regional approaches. The evaluation should incorporate an appraisal of the relationships between federally funded regional planning authorities and regional or local water quality management agencies such as transportation, land disposal of wastes, land use planning, and water supply when such agency activities affect water quality. The purpose of the evaluation is to help ensure that implementation plans are constructed on a realistic foundation which reflects the area's experience in regionalized management."

The Guidelines (at page 7-1) impose on MVRPC, as the designated 208 planning agency, the burden of taking "a lead role in formulating institutional arrangements for the area."

The Management Planning Process

From the foregoing it is clear that the management planning process for the area must be regional in scope, and that, absent a single agency capable of performing the required management agency functions under Section 208 (c) of the FWPCAA, coordinative management of all governmental units and agencies engaged in water control activities in the Miami Valley area will be necessary to assure achievement of the Act's objectives.

The Guidelines (page 7-11) recognize that the FWPCAA's purposes can be achieved where there is a single planning agency and plural "management" agencies, thereby permitting existing entities already providing waste treatment service to continue with a minimum effect on their internal administration. In such cases, there should be

"a single supervisory agency with clear responsibility and resources for overall management, coordination, and plan enforcement" (page 7-12).

Intergovernmental agreements should be considered as a means for achieving that result.

Management Agency(s) and Institutional Arrangements for the Miami Valley

As anticipated by the Guidelines, there is not, in the five county area represented in the MVRPC, any single operating wastewater control agency of regional scope, whose membership comprises elected officials or their designees, available for designation as a sole "management agency" under Section 208(c)(2) of the FWPCAA.

There are, however, a number of governmental entities active in the wastewater quality control field in the Miami Valley region, as well as others having the potential of functioning therein, which merit consideration for identification by MVRPC as management agencies.

There is also precedent in the Miami Valley region for institutional arrangements for coordinative management of such agencies.

The governmental entities whose legal functions and powers are reviewed are as follows:

- (a) Ohio Environmental Protection Agency (OEPA).
- (b) Ohio Water Development Authority (OWDA).
- (c) Ohio Department of Natural Resources (ODNR).
- (d) Conservancy Districts.
- (e) Sanitary Districts.*
- (f) Water and Sewer Districts (Regional).*
- (g) Soil and Water Conservation Districts.
- (h) Regional Councils of Government (COG)* and Regional and County Planning Commissions.
- (i) County Sewers.
- (j) Municipal Corporations.

The foregoing entities are reviewed in the Legal Critical Factors Analysis report from the standpoint both of the powers which management agencies are required to possess under Section 208 (c) (2) (A) - (I) of the FWPCAA and those useful in implementation of the area-wide plan, based upon other sections of the FWPCAA as well, e.g., Section 208 (b) (2) and 204 (b) (1) (A) - (B). The importance of many of these functions is discussed in an Indiana University study entitled, Problems and Approaches to Areawide Water Quality Management (hereinafter, Indiana Study) as well as in the Guidelines.

A. The required powers are the following:

- 1. Authority to construct and operate treatment works required by the areawide plan. (Section 208(c)(2)(C) of the FWPCAA);
- 2. Authority to receive or accept monies from any source and/or the authority to receive and accept federal grants for the purpose of water pollution control. (Section 208 (c)(2)(D));

*None presently exist in the five county Miami Valley area.

3. Authority to raise revenues by assessing all users of the system on the basis of the cost of treatment or the characteristics of the effluent. (Section 208(c)(2)(E); Section 204(b)(1)(A));
4. Authority to assess or enter into contracts with private industry for the repayment of their percentage share of construction costs which were funded by federal grants. (Section 208(c)(2)(E); Section 204(b)(1)(B));
5. Authority to incur short-and long-term indebtedness (Section 208(c)(2)(E); Section 208(c)(2)(F));
6. Authority to charge each participating community its proportionate share of the treatment costs. (Section 208(c)(2)(G));
7. Authority to refuse to receive any wastes from any municipality which does not comply with the areawide plan. (Section 208(c)(2)(H));
8. Authority to accept for treatment industrial wastes (Section 208(c)(2)(I)). In addition, Section 208(b)(2)(C)(iii) requires the areawide plan to include a regulatory program to assure that industrial or commercial wastes will not be discharged into the system unless they meet applicable pretreatment standards. Consequently an areawide waste treatment management agency should have the authority to refuse industrial wastes which do not meet pretreatment standards;
9. Authority to impose land use controls, which may include zoning regulations; subdivision regulations; flood plain zoning and regulation; environmental performance zoning; Planned Unit Development (PUD) regulations; buffer zones; conservation and scenic easements; housing and building codes; construction permits; development permits; transferable development rights (TDRs); hillside development regulations; grading regulations; taxation policies; public works policies; land conservation policies; and discharge permits. This power is required by Section 208(c)(2)(A) which mandates that a management agency have the authority "to carry out appropriate portions

of an areawide waste treatment management plan developed under (Section 208(b))." Land use powers are required to satisfy the terms of Section 208(b)(2)(C)(ii) and Section 208(b)(2)(F) - (H), which deal with the control of nonpoint sources of pollution. In addition, it is the policy of Congress that land use controls be considered in the water quality program. (Section 101(b));

10. Authority to acquire land through condemnation and eminent domain, although not explicitly required, would appear at least to be contemplated by the FWPCA. Section 208(c)(2)(A) requires authority to carry out the areawide plan and Section 208(b)(2)(A) states that the plan must consider requirements for the acquisition of land for waste treatment purposes.
- B. In addition to the required authorities listed in A. supra., there are numerous functions ancillary to the requirements of Section 208(c)(2) which would enhance the management capabilities of a management agency.
11. Since the requirement of Section 208(c)(2)(H) would, in most instances, be impractical or inconsistent with the water quality goals of the FWPCA if strictly enforced, there are several other less drastic measures which might still serve the purpose of obtaining adherence to the areawide plan. If any or all of the following authorities were possessed by management agencies, their capabilities would be greatly enhanced.
 - a. Authority to refuse additional "hook-ups" from any or all users in a municipality which does not comply with the areawide plan,
 - b. Authority to impose other sanctions, criminal or civil, for noncompliance with the areawide plan such as fines, penalties, or surcharges. This power must include the authority of an agency to enforce its rules and regulations and is also an important element in the effective management of a waste treatment system. (Section 208(c)(2)(B));

12. Authority to require communities and/or industries to participate in the waste treatment system;
 13. Authority to enter, inspect and monitor the premises and the discharges of users of the system is important in the detection of pretreatment violations and the determination of a user's proportionate share of treatment costs (Section 208(c)(2)(E)). Owners and operators of point sources are required to monitor their own premises by the Administrator of the U.S. Environmental Protection Agency (USEPA) (Section 308);
 14. Authority to contract work to other agencies, private corporations or persons;
 15. Authority to employ managers, engineers, etc.;
 16. Authority to insure facilities and employees;
- NOTE: The authorities listed in 14-16 supra., enhance a management agency's capability to construct, manage and operate a waste treatment facility as required by Section 208(c)(2)(C).
17. Authority to acquire by gift or purchase, hold in fee or by leasehold, and dispose of real and personal property;
 18. Authority to make, distribute or redistribute loans and grants to other agencies. (A management agency's enforcement powers are greatly increased when it has the authority to withhold monies from other agencies which fail to comply with its rules and regulations or any aspect of the areawide plan.);
 19. Authority to enter into contracts with local, county, regional and state agencies and the federal government. (This power is important in expanding an agency's geographical jurisdiction and is discussed in detail in Legal Critical Factors Analysis.);
 20. Authority to reassign the unused right of any industries to discharge into the system. (This authority would enhance a management agency's ability to manage effectively, Section 208(c)(2)(B), in the event an industry decreases its use of the system, thereby avoiding unused capacity of the waste treatment

system. The concomitant obligation of an industry to repay its share of treatment costs -- "industrial cost recovery" share -- should also be transferable;

- 21. Authority to invest elsewhere monies raised in excess of current expenditures;
- 22. Authority to contract for private financing;

NOTE The authorities in 21 and 22, supra., may increase a management agency's financial soundness and increase its flexibility in the financing. Section 204(b)(1)(C) prohibits the Administrator of USEPA from approving any grant for treatment works construction unless he finds that the agency has the financial capability to insure adequate construction, operation and maintenance of the treatment works.

- 23. Authority to engage in planning related to the water quality of the region including, but not limited to, land use planning;
- 24. Authority to engage in public health functions including, but not limited to, residual waste management and solid waste disposal. This includes planning, regulatory and operational functions;
- 25. Accountability to the electorate and public participation. (Section 101(e)). Public participation activities required of state agencies are set forth in 40 Code of Federal Regulations (CFR) 105;

The analysis on the following pages points out that it is unlikely that one single agency will possess the legal authority or the resources to act as the sole areawide waste treatment management agency under existing legislation. The task is to determine the optimum combination of local, county, regional, and state agencies to implement and manage the areawide plan. Some degree of functional fragmentation, where different agencies perform different functions, seems inevitable; however, it must be assured that there is a high degree of coordination between these agencies. Geographical fragmentation, where separate agencies perform the same tasks in different parts of the 208 area, may be acceptable in certain circumstances. An

example of such circumstances would be where more than one local or county agency operates a waste treatment works within a designated 208 region. Certain functions, however, such as "planning, enforcement, and control of nonpoint sources should be performed by an agency or agencies operating throughout (emphasis added) the area." It is an important principle to remember that excessive fragmentation of functions is highly undesirable, so that consolidation of functions will probably be necessary throughout most of the nation's waste treatment areas.

In the Legal Critical Factors Analysis report, the existing agencies in the state of Ohio which currently have a role in water quality control and their legal authority, either existing or potential, to accomplish the functions listed above, required by Section 208(c)(2) and related sections of the Act, are examined individually. Each agency's statutory ability to carry out the twenty-five required and ancillary authorities is discussed in detail in that specific report. The summary and the conclusions which follow discuss all agencies; these sections are taken from the Legal Critical Factors Analysis report.*

*It must be recognized that the discussion here set forth is necessarily academic and that the counsel for the agencies referred to should be consulted for an authoritative view of their functions and powers.

Summary

A. Required Authority

1. Authority to construct and operate a waste treatment works.

The first authority required by Section 208 (c) of the FWPCA, namely, constructing, acquiring and managing waste treatment facilities is an important function mandated by the FWPCA. Political subdivisions at all levels in Ohio are given express authority which is commonly stated as the power to "construct, acquire, operate and maintain treatment and disposal works." These entities include the Ohio Water Development Authority (OWDA) at the state level; conservancy, sanitary, and water and sewer districts at the regional level; county sewers at the county level; and cities and villages at the local level. There appear to be no gaps in the legal authority required for this function.

2. Authority to accept or receive monies from any source including, but not limited to, federal grants.

The authority to receive and accept monies from any source, including but not limited to federal grants, is a power necessary for an areawide management agency to possess. The FWPCA contemplates that up to 75 percent of the construction costs for waste treatment facilities will be paid for by federal grants. There appear to be no gaps in the legal authority for this function. All the political subdivisions under study either expressly or impliedly possess this power.

3. Authority to assess "user charges" based on the costs of treatment or the characteristics of the effluent.

The legal authority to initiate and administer a "user charge" system as required by the FWPCA is implied in the authority of potential waste treatment management agencies

to charge reasonable rates and rentals for the use of their facilities. This section of the FWPCAA requires that all users of waste treatment facilities pay their proportionate share of operating and maintenance costs attributable to their use of the facilities. The cost will depend on such factors as the quantity and quality of the wastes discharged, peak hour demand and distance from collection and treatment facilities. USEPA regulations prohibit the allowance of bulk or quantity discount.

The political subdivisions in the study which have authority to operate waste treatment facilities also have the authority, stated in various ways, to charge, collect and alter reasonable rates and rentals for the use of their services. Under Ohio law, these charges may be based upon the cost of treatment which in turn will depend upon the quantity and quality of the discharge. Consequently, industrial users which discharge wastes containing a higher concentration of biochemical oxygen demand (BOD) and suspended solids can be charged a higher rate per volume than residential users.

Much has been written about the prohibitive monitoring and administrative costs and delays inherent in strict compliance with "user charge" provisions of the FWPCAA. Alternatives have been suggested such as charging users through an ad valorem property tax and dividing users into categories based on the characteristics of their discharges. However, a discussion of administrative difficulties is not pertinent to the legal analysis; and the political subdivisions in Ohio appear to have the legal authority necessary for strict compliance with the "user charge" requirements of the FWPCAA.

4. Authority to comply with the "industrial cost recovery" requirements of the Act.

Unlike the "user charge" requirements, there may be both administrative and legal obstacles to complying with the industrial cost recovery

(ICR) requirements of the FWPCAA. Only the latter will be discussed in this section. Permit fees, connection fees and special assessments are not suitable methods of charging industries for their proportionate share of the federally-funded costs of constructing waste treatment facilities. The difficulty with including ICR in the "user charge" is that it may violate the requirement of uniformity for public utility rates. Industry can be charged a higher rate per volume based on the quality of their discharges (See number 3, supra) but being assessed an additional rate increase based on the ICR requirement of the FWPCAA but unrelated to cost of treatment might contravene Ohio law. If all users -- public, industrial and residential -- were assessed their proportionate share of federally-funded construction costs (the share recovered from industry must be segregated), the rates would assuredly be held to be uniform. However, this would result in an across-the-board rate increase and would cancel the benefits of a federal grant for all non-industrial users. This probably would not be consistent with the policies and purposes of the FWPCAA.

There appear to be no legal obstacles for the political subdivisions to contract with industry to provide waste treatment services and to include in its terms a commitment for industry to repay its share of ICR. However, a requirement that industry contractually bind itself for a number of years to use the services of the agency may result in the industry opting to treat its own wastes and obtain a National Pollution Discharge Elimination System (NPDES) permit to discharge directly into the waters of the state. The effect of requiring binding contracts on industries treating their own wastes and the resultant loss of the agency's revenues should be considered and weighed against alternatives.

At present, the federal ICR requirement, as strictly construed, is being examined by USEPA and other interested agencies. There

has been much criticism of ICR as it now stands. While remedial legislation in Ohio is needed in the area of public utility law or the enabling statutes for potential management agencies if the agencies are to be sure they have authority to comply with the ICR requirement, it is advisable that waste treatment management agencies devise a system under their current authority which will comply with the ICR requirements of the FWPCAA. It appears unlikely that USEPA would freeze progress on waste treatment works construction solely because a proposed rate structure satisfying ICR requirements might not withstand judicial scrutiny.

5. Authority to incur short-and long-term indebtedness.

The authorities included under this heading comprise the political subdivisions authority to incur short - and long-term indebtedness. It is through the issuance of bonds and notes that the nonfederally funded costs of projects and improvements will be funded.

County sewer districts and municipal corporations have full powers to issue bonds and notes payable out of the general treasury, revenues from the project or in anticipation of the collection of special assessments. No other political subdivisions under study have the authority to issue general obligation bonds.

The OWDA has the authority to issue revenue bonds and notes which are pledged and payable solely out of its revenues. In addition, OWDA can issue bonds to pay for the construction of waste treatment works by other political subdivisions; the credit and saleability of bonds issued by a state agency is often much greater than that of regional, county or local political subdivisions.

Conservancy districts and regional sewer and water districts have the express authority to issue revenue bonds and notes; and bonds and notes in the anticipation of the collection of special assessments. Sanitary districts, on the other hand, have only the authority to

issue bonds in the anticipation of the collection of special assessments. Consequently, if a water resource project were to be constructed by a sanitary district, it would be likely that money would be raised through the sale of OWDA bonds. Soil and water districts, Ohio Department of Natural Resources (ODNR), Council of Governments (COG) and regional planning commissions lack the power to incur short-and long-term indebtedness. While there are gaps in the authority to issue various types of bonds and notes, those agencies with the authority to construct waste treatment improvements seem to possess adequate means to finance the projects.

6. Authority to charge each participating community its proportionate share of the treatment costs.

The requirement of the FWPCAA that each participating community pays its proportionate share of the treatment costs can be viewed in two ways. The first is that if each individual user in a community pays its proportionate share, then the community as a whole will be paying its proportionate share. But the interpretation which seems more consistent with the FWPCAA is that communities be required to pay the proportionate share of costs attributable to treatment of wastes from their sewage systems. Communities may agree among themselves to pay shares not totally based on cost of treatment and transportation of wastes. For example, a community may agree to contribute more money for not having a treatment facility located within its boundaries. However, if there is a rational basis for the amount paid by each community, this freely agreed upon allocation of charges should be considered a "proportionate share" under the terms of the FWPCAA.

Another question which arises is the meaning of the term "community." The area so defined need not necessarily correspond exactly to a city, township, county, etc. Rather, "community" should refer to that area served by a single sewage treatment facility which

in turn discharges the collected and treated sewage into the areawide waste treatment works.

None of the political subdivisions under study have the express authority to charge each participating community its proportionate share. This authority can be implied, however, from the authority of several of the political subdivisions to contract with other political subdivisions. If such contractual powers exist, there appear to be no legal barriers for the waste management agency to contractually bind participating communities to pay their proportionate share. Remedial legislation is recommended, however, to expressly authorize potential management agencies to contract with communities for the payment of their proportionate share of treatment costs. The enacted legislation should clarify or define the term "community" and specify that the proportionate share may include a mutually agreed upon allocation of costs considering factors which include but are not limited to cost of treatment and distance from the areawide facility.

7. Authority to refuse to receive any wastes from any municipality which does not comply with the areawide plan.

A total refusal of wastes from a municipality for the latter's noncompliance with the areawide plan, whether related or unrelated to the use of the treatment works, is not a realistic sanction to impose for violations of the plan. Such a refusal would be inconsistent with the goals of the FWPCA and the water quality of the region. If this were the action taken by the areawide management agency, municipalities would have no choice other than to dump untreated, or partially treated, sewage and industrial wastes into rivers, lakes and streams. Nevertheless, most of the agencies under study would have the implied authority under the rule-making and "protection of their improvement" powers to refuse wastes from a municipality when noncompliance with the areawide plan is related to use of the system. This would include a failure to satisfy pretreatment and effluent standards. However, when a municipality's noncompliance is unrelated to the use of the treatment works, such as when its zoning or subdivision regulations violate the regional land use

plan, it is doubtful that the areawide waste treatment management agency could refuse to accept wastes from the municipality.¹

8. Authority to accept industrial wastes for treatment; and to refuse to accept industrial wastes when the industry fails to comply with the areawide plan.

All the political subdivisions which are authorized to own and operate waste treatment facilities possess either express or implied powers to accept industrial wastes for treatment. The political subdivisions under study, through either their express authority to issue permits as a precondition to discharge of wastes or their power to make rules and regulations to protect their improvements or the waters of the State, would appear to have the implied authority to refuse industrial wastes which do not comply with federal, state, or local pretreatment or effluent standards. However, when an industry's noncompliance is unrelated to the use of the treatment works, the authority to refuse their wastes is uncertain. Examples of such violations of the areawide plan are an industry's violations of a zoning ordinance (e.g. use of land which is prohibited); disposal of solid wastes in a prohibited manner; and failure to control nonpoint sources of pollution. It would greatly increase a management agency's powers of enforcement if it were authorized to refuse discharges from an industry for such violations of the areawide plan unrelated to use of the treatment works.

9. Authority to impose land use controls.

Aside from counties and municipal corporations, the political subdivisions in the study possessed only limited land use controls. Most notable among these are the conservancy districts and the regional water and sewer districts which may establish conservation easements, issuance of development permits for areas adjacent to the water supply, hillside development and grading regulations and the issuance of discharge permits. County land use

powers are very complete within the unincorporated areas of the county and municipal corporations have complete land use powers within their areas of incorporation. These include zoning, subdivision and building regulations. Zoning laws in Ohio, however, are not written so as to specifically include environmental considerations as factors in the use of land. Although environmental protection clearly falls within health, safety and general welfare of the people, laws requiring consideration of the environmental effects of land use, would increase water quality awareness for planning and zoning.

10. Authority to acquire land through condemnation and eminent domain.

All the political subdivisions in the study which were authorized to construct and operate waste treatment works, had, in addition, express authority to acquire land through condemnation and eminent domain.

B. Ancillary Authority

- 11(a) Authority to refuse additional "hook-ups" from any or all users in a municipality which does not comply with the areawide plan.

The authority to refuse additional "hook-ups" from any or all users in a municipality which violates the areawide plan is an important sanction which is less drastic than total refusal of municipal wastes. Where additional "hook-ups" to the municipal facility would result in overloading or the municipal facility is already in violation of rules relating to use of the areawide facility several of the agencies under study would presumably have implied authority to prevent the connection under their rule-making and "protection of their improvements" powers. Only the Ohio Environmental Protection Agency, however, has the express authority to impose sewer connection bans (sewer moratoria) where necessary to protect the waters of the state. Remedial legislation may be needed to provide a workable method to accomplish this. OEPA notwithstanding, the other political subdivisions included in the analysis seem to lack the broad regulatory powers necessary to control the discharge of wastes into local sewers and sewerage treatment systems. At

present, they presumably could impose the threat of refusal of municipal wastes if additional connections would result in new or aggravated violations of pretreatment and effluent standards. County sewer districts have the express authority to make and enforce regulations for municipal sewer system which discharge into sewage plants owned and operated by the county. It would thus appear that county sewers have the authority to impose a moratorium on municipal sewer systems which violate rules and regulations for the use of a treatment works owned and operated by the county.

In the situation where an applicant for waste treatment service which is located in a municipality in violation of the areawide plan seeks a "hook-up" directly to the regional treatment facility, it is doubtful if any areawide management agency which was examined has the authority to deny the "hook-up" solely on the basis of the applicant's location. The applicant would need to show, however, that it was located in an area serviced directly by the areawide plant and that it complied with the applicable rules and regulations of the management agency.

New legislation is needed in this area. Potential management agencies should be given express authority to require the issuance or approval of a permit to discharge as a precondition to utilizing the service of an areawide treatment facility or any facility which discharges into the areawide plant. These agencies should also be expressly authorized to prohibit additional "hook-ups" when a municipality's noncompliance with the areawide plan is unrelated to the use of the system, such as a municipality's failure to adhere to a land use plan of the regional planning agency.

11(b) Authority to impose civil or criminal sanctions.

The authority to impose criminal and civil sanctions for violations of the areawide plan is a very important method of gaining compliance with the plan and an area where the requisite power is solely lacking.

One important authority is that of OWDA to establish waste treatment facilities service areas whereby they take over the control and operation of a waste disposal facility which is in violation of a permit issued by the director of OEPA. Legislations should be enacted to grant this "take over" power to the regional, county, and local political subdivisions which have a role in wastewater management and extend to any and all violations of the areawide plan.

OEPA has extensive powers to impose civil and criminal penalties on political subdivisions and persons which violate the terms of a waste discharge permit. It also has the power to require the appointment, subject to its approval, of a competent manager when a local sewage treatment works fails to comply with OEPA pretreatment standards. The fines and penalties which OEPA is expressly authorized to impose are substantial.

The other political subdivisions under study lack authority to impose fines and penalties which would be likely to deter a large discharge into the system from abating the violations. In many instances, the maximum penalty is \$1,000 or less. In these cases, it is often more economical for an industry to pay the fine than install costly equipment necessary to comply with pretreatment standards. Counties and municipal corporations, however, under their police powers, would presumably have the authority to adopt ordinances and impose civil and criminal penalties for violation of rules and regulations relating to the use of the treatment works.

The authority of any agency operating a waste treatment works to levy a surcharge should be implied when these added charges are based on increased costs of treatment related to the quality of the effluent discharged into the system. Furthermore, a waste treatment management agency, if authorized to sue and be sued, should have the implied authority to sue a user for damages caused by misues of the system.

However, surcharges and damages are compensatory rather than punitive in nature, and thus would have little effect of enforcing provisions of the areawide plan. A majority of the political subdivisions in the analysis are expressly authorized to sue and be sued.

In conclusion, remedial legislation should be enacted to strengthen the authority of waste treatment management agencies to impose civil and criminal penalties. An increase of this authority would greatly aid enforcement of the provisions of the areawide plans.

12. Authority to require communities and/or industries to participate in the waste treatment system.

The authority to require political subdivisions and private industry to participate in the areawide waste treatment system is an important power from the standpoint of regulating and controlling discharges into the state's waters. In some instances, the areawide management agency may deem it desirable for certain industries to treat their own wastes. However, in planning the capacity of the treatment facility, it may be important to be assured that those political subdivisions and industries in the area utilize the system. In addition, the management agency will be in a better position to monitor and control pretreatment of wastes, determine that effluent standards are being met and impose sanctions for violations of the areawide plan.

Only two political subdivisions have the express authority to require property owners to use the system when improvements have been made to serve their property. The authority for sanitary districts includes "public corporations and persons." The authority of regional water and sewer districts is framed in terms of the "owner of a premises which is accessible to a water resource project." There is some question whether the latter authority would cover a municipal treatment works. In any event, this authority is not one likely to be implied as necessary to the carrying out

of a power expressly granted. Remedial legislation should be considered for all potential waste treatment management agencies to empower them to require, similar to that of sanitary districts, public corporations and persons to utilize the system.

13. Authority to enter, inspect, and monitor the premises and the discharges of users of the system.

The only political subdivision under study which has express authority to enter and inspect public and private users of waste treatment works and require users to monitor their own discharges is OEPA. Under Ohio law, however, public utilities may make reasonable rules and regulations regarding the use of the system, including the requirement that users monitor their own discharges into the system. The authority to enter and inspect can be reasonably implied when an agency has the power to make rules and regulations to prohibit the discharge of any wastes deemed detrimental to the works and improvements of the agency. Several of the political subdivisions studied had such rule-making powers including conservancy districts, regional water and sewer districts, and county sewers. Remedial legislation, however, would be advisable to give all potential waste treatment management agencies the express power to enter, inspect and monitor users of the system and to sample their discharges into the system. Such legislation would prevent any potential litigation over a disputed right to enter, inspect, sample wastes, and monitor the premises of a user.

14. Authority to contract work to other agencies, private corporations or persons.

The authority to contract work to other persons, private corporations or agencies is necessary for the accomplishment of various functions contemplated by the FWPCAA including, but not limited to, the construction of waste disposal facilities. There are no legal gaps for this authority. For all the

Political subdivisions under study this power was either expressed or implied as necessary to carry out other powers and duties expressed in the enabling legislation. This authority, however, is not unlimited in all cases. For example, some of the enabling statutes require competitive bidding procedures to be followed when the contract exceeds a specified amount.

15. Authority to employ managers, engineers, etc.

There appear to be no legal gaps in the authority of political subdivisions under study to employ managers, engineers, etc. This is considered an inherent power of political subdivisions in Ohio. Some of the agencies are given express authority to employ certain types of personnel. However, there should be no impediment for any political subdivision in Ohio to employ any manager, engineer, etc., reasonably necessary to carry out the duties and powers expressed in its enabling legislation.

16. Authority to insure facilities and employees.

Only two political subdivisions in the study, OWDA and regional water and sewer districts, are expressly authorized to insure facilities and employees. This power, however, is considered to be inherent in the existence of an agency and possessed by all agencies under study. Consequently, there appear to be no gaps in the legal authority to perform this function.

17. Authority to acquire by gift or purchase, hold in fee or by leasehold, and dispose of real and personal property.

All political subdivisions which have the authority to construct and operate waste treatment works are also given the express authority to acquire by gift or purchase, hold in fee or leasehold, and dispose of real and personal property.

18. Authority to make, distribute or redistribute loans and grants to other agencies.

The authority to make loans and distribute or redistribute grants can be an effective means of enforcing the areawide plan.

19. Authority to enter into contracts with local, county, regional and state agencies and the federal government.

All the political subdivisions under study are either expressly or impliedly authorized to enter into contracts with the state and/or federal government.

20. Authority to reassign the unused right of any industries to discharge into the system.

The authority to reassign the unused right of any industries to discharge into the system.

The authority to reassign any unused right of an industry to discharge into the system is important for two reasons. First, it may well be more consistent with the goals of the FWPCA if the management agency is able to operate at full capacity should it choose to; and not be required to reserve an industry's right to discharge which the latter has not present or immediate need for. Second, if an industry's obligation to pay its share of industrial cost recovery is based on its use of the system and not its contractual right to discharge into the system, any unused industrial right to discharge would result in less revenues recovered from industry to repay the federally funded share of construction costs.

None of the political subdivisions studied have express authority to reassign an unused right to discharge, which can be referred to as a "transferability provision." There seems to be little doubt, however, that both the areawide management agency and an industry can bilaterally agree to reform a contract to discharge when an industry decreases its use of the system. This right to discharge and concomitant obligation to

pay a share of industrial cost recovery could then be transferred to another industry which desires new or increased use of the waste treatment system. Where an industry wishes to retain an unused right to discharge into the system, however, it is doubtful that a management agency, without express authority, can unilaterally require an industry to relinquish that right and transfer it to another potential user. Therefore, remedial legislation may be needed in this area.

21. Authority to invest elsewhere monies raised in excess of current expenditures.

Only two political subdivisions under study, OWDA and regional water and sewer districts, are expressly authorized to invest elsewhere monies raised in excess of current expenditures. Furthermore, these authorized investments are limited to federal and state obligations. A gap in this authority, however, is not of great importance for implementation of the FWPCA.

22. Authority to contract for private financing.

The authority to contract for private financing is lacking for most agencies. Sanitary districts are empowered to borrow money to finance preliminary work. This power is not of great importance, however, where the potential management agency is vested with other means of financing, such as the issuance of revenue bonds.

23. Authority to engage in planning related to the water quality of the region including, but not limited to, land use planning.

All of the political subdivisions in the study, with the exception of OWDA, are delegated some express power to prepare plans related to water quality. The most comprehensive land use planning powers are held by COGs and regional, county and city planning commissions.

24. Authority to engage in public health functions including but not limited to, residual waste management and solid waste disposal.

Political subdivisions at all levels possess powers relating to residual waste management and solid waste disposal. OEPA is responsible for the state-wide regulatory scheme while OWDA has the express authority to make and enforce rules and regulations, own and operate, and finance solid waste disposal facilities. Sanitary districts are the primary regional agency with authority in this area. Counties may engage in solid waste disposal activities through the formation of County Garbage and Refuse Disposal Districts. These districts may also operate in municipalities with the consent of the latter. Finally, boards of health, which may be formed for both cities and counties, have important duties relating to licensing and inspection.

The major problem in this area seems not to be gaps in jurisdiction, but overlapping jurisdictions at the four levels of government. Mechanisms to coordinate solid waste disposal with waste water management must be provided for in the 208 areawide plan.

25. Requirements to consider public input before adopting plans, rules and regulations.

While there appear to be no legal barriers for any of the political subdivisions in the analysis to adopt public participation requirements, such as those set forth in 40 CFR 105, only OEPA, at present, is statutorily required to do so. Many of the political subdivisions currently have notice and hearing requirements prior to adoption of their official plans, but most of the public participation procedures fall far short of the guarantees listed in the federal regulations. While these regulations apply only to state-level agencies, the accountability to the public would be improved if similar regulations were adopted by all management agencies.

FOOTNOTES

1. The United States District Court for the District of Kansas in Uhl v. Ness City (44 L.W. 2282, decided December 5, 1975) found it is unconstitutional for local governments to stop providing water to residents because of unpaid mandatory solid waste collection bills.

The Court declared that all such ordinances are a violation of the due process clause of the 14th Amendment. The Court held the ordinances oppressive and a threat to health, stating:

"By threatening to deprive residents of water, an absolute necessity of life, in order to collect a service charge for other municipal functions, the defendant cities have chosen an . . . oppressive collection method."

The Court reasoned that the ordinances had no reasonable relationship to their purpose of improving the living conditions of city residents by providing mandatory garbage collection.

Conclusions

1. Adequate authority exists at all levels to construct, own, and operate waste treatment facilities.
2. Any problems in adopting a "user charge" system as required by the FWPCAA appear to be administrative rather than legal.
3. Authority to satisfy the "industrial cost recovery" requirements of the FWPCAA is uncertain. The answer, to a large extent, depends upon the applicability of public utility doctrine in Ohio to waste treatment plants operated not-for-profit by governmental entities.
4. The 208 management agencies may not be able to refuse municipal and industrial wastes when their noncompliance is unrelated to the use of the treatment system (e.g., violation of land use regulations; violation of solid waste disposal permit requirements).
5. Remedial legislation may be needed to allow 208 management agencies to impose sewer moratoria in municipalities which violate any aspect of the areawide plan. Of the political subdivisions included in this study only OEPA has this express power.
6. Potential 208 management agencies could use greater powers to impose civil and criminal penalties for violation of their rules and regulations.
7. 208 management agencies may need authority to require persons and industries to participate in the areawide waste treatment system when in the interest of the health, safety and general welfare of the people.
8. Where gaps in the legal authority exist, it is advisable that 208 management agencies be given the express authority to enter, inspect and monitor the premises of the system's users.
9. The 208 management agencies should have authority to withhold federal and state grants and other funds from local agencies which are in violation of significant aspects of the areawide plan.

10. Public participation requirements and procedures, which are required of state agencies by 40 CFR 105, should be adopted by 208 management agencies.
11. Land use legislation which provides for the amortization or "phasing-out" of existing, nonconforming uses should be enacted. It would be helpful if the water quality of the region were a permissible basis for zoning laws.
12. An institutional arrangement providing for the cooperative management of the areawide water control process through an appropriate regional agency would appear to be essential to satisfy the requirements and purposes of the FWPCA.

INSTITUTIONAL CRITICAL FACTORS

In this section of this evaluative report, inter-governmental arrangements are described and the inner workings of those efforts are assessed to determine the institutional critical factors that must be taken into account for realistic 208 plan development. Previous tasks have examined existing programs within each level, dealing mostly with the efforts of particular units of government. That is, the programs of Darke County, the city of Piqua, or Franklin Township, for example, have been discussed without making direct comparisons or really drawing out what intergovernmental arrangements exist.

Tasks completed for Phases I and II in the preparation of the Section 208 management plan component have not included any comparison to determine how well each government is doing; that can only be done fruitfully when a more complete understanding of the actual problems in the Miami Valley region is presented by the technical study team. It is appropriate at this point, however, to examine what intergovernmental programs do exist in certain problem areas, and to draw some conclusions about the institutional constraints and incentives that support them.

The areas are assessed to fulfill the critical factor analysis. Although this work calls for a complete examination of all program areas, the information needed to be all-inclusive has not been assembled. It is expected that the other problem areas will be defined by the technical study. It is further expected that the Water Resources Committee, with the assistance of the MVRPC staff, will decide which problems should be addressed first in the actual development of the plan. At this point in the planning process further evaluative work in the institutional field cannot be completed without policy decisions on the problems to be considered.

Definition of Terms

Before moving into the assessment, the key terms used here must be defined. Throughout the planning process, "institution" will be taken to mean a formal organization whose members act in a coordinated way to realize the purposes for which that organization exists. Used this way, the term covers all the agencies and departments of conventional governments in the region.

"Institution" can also be applied to industries, trade associations, and public or special interest groups when such organizations are involved in some area of water quality management. Institutions interact with one another and with "the public."

Exactly who "the public" is depends on the issues and institutions involved in a given situation. Thus, it will be useful to distinguish different "publics" when specific situations or problems are examined. To illustrate how these terms apply to the matters discussed in the 208 planning process, consider the following statement about agricultural runoff.

Farmers in the Miami Valley Region (a public) work with the county representatives of the Soil and Water Conservation Districts (an institution) to develop voluntary programs to control agricultural runoff (an issue) by reducing topsoil loss (an objective) and raising crop yields (a second objective).

"Institutional arrangements" are working relationships and activities carried on in some coordinated way by different institutions and "publics" to achieve an objective that cannot be realized satisfactorily if all work independently. A detailed description of the program development process involving farmers and district officials in agricultural runoff control, for example, would be one way to present an institutional arrangement.

Some arrangements may be the result of deliberate planning or agreement, and may follow a conscious design; these are called "formal" arrangements. Others are the result of incremental changes worked out in the day-to-day grappling with a problem over a long period of time; these are called "informal" arrangements. Distinguishing between the two types is useful because both exist in region, but each can be treated differently in terms of its role in areawide water quality management.

Two program areas are evaluated below: the first is wastewater treatment; the second is stormwater runoff. In the area of waste treatment, large-scale plants, package plants, and septic systems are dealt with one at a time, since the institutional arrangements in each case are slightly different. Stormwater related pollution problems are subdivided into urban and agricultural runoff, two hydrological phenomena that cause quantity as well as quality problems in the region. The level of detail

to which a preliminary assessment can do is slightly different for the two broad areas. Much more has been done to deal with waste treatment issues than with stormwater. For this reason intergovernmental connections are clearer and more easily tabularized, as a comparison of Tables 13 through 17 shows.

Waste Treatment -- Large Scale Operations

Intergovernmental arrangements for sewage treatment have taken two forms in the Miami Valley region. First and most frequently found is the contractual agreement by a supplier of the service with the local government of a service population. Second is a multi-party joint effort to fund and build what is called locally a "regional" plant. Service contracts are formal agreements in the sense of the term we have defined; they include conditions of service, fee schedules, and the other responsibilities each party agrees to assume. Greene and Montgomery Counties have service agreements with municipalities inside their borders. The cities of Dayton, Eaton, Piqua, have service contracts with communities in the counties that surround them. Local governments on the periphery of growing urban areas may find it more convenient to enter into contractual agreements with a large-scale supplier than to push for an independent facility. The local unit being served represents its constituents in negotiations with suppliers.

The overriding institutional critical factor involved here is the fact that extended, mutually beneficial contracts must take into account the different objectives of the parties. The supplier attempts to maximize its service area and revenue, while the consumer does its best to minimize the cost of the service. Protracted disagreements over what an "equitable" contract might be quickly moved from the negotiating room to the political arena and the governments involved may feel compelled to entrench themselves in hostile positions in the name of independence. A related factor that can contribute to strained relations in the region is the tendency of some suppliers (e.g., Dayton) to prefer outright annexation via a utility extension policy over the signing of service contracts. In the recent past, smaller municipalities and county townships have become increasingly reluctant to accept annexation.

Two joint efforts to design and build new facilities that will serve more than one jurisdiction are currently being developed. One is the Western Regional Treatment Plant operated by Montgomery County and serving Wittering,

Moraine, Centerville, and unincorporated areas of the county adjacent to those municipalities. MCD is also an active participant in the second example, the North Regional Treatment Plant. Other partners in the development of this plant are the Ohio Suburban Water Company, Vandalia, Tipp City, and unincorporated portions of Miami and Montgomery counties. MCD will act as the wholesaler of sewage treatment services, while Ohio Suburban and the other participants will own their own service lines.

Both projects are still in the preliminary design stages and it would be presumptuous to decide their impact on other treatment operations, but it can be pointed out that the very fact that initial agreements have been reached demonstrates that independent institutions can realize their objectives by acting in concert.

Table 13 displays and explains the formal responsibilities each government at each level must assume if it engages in waste treatment. In cases of joint ventures, however, there are several different arrangements possible. This is, in itself, an institutional critical factor. Contract arrangements between an existing supplier and a service area do not admit the possibility of alternative set-up. The joint ventures mentioned above do, however. At this point in time, the agreed-on structure is one of mixed ownership. Thus, it is fair to conclude this part of the assessment by saying that the institutional critical factors identified involve each institution's own notion of self-interest. Where the objective of a regional plant is reconcilable with a local government's own objectives of political independence, steady revenues, and economical operations that match income and outgo, cooperative formal arrangements are possible.

Waste Treatment -- Package Plant Operation

"Package plant" is a term used to describe small, automatically controlled sewage treatment systems that can be installed by a private concern to treat domestic wastes before discharge into receiving waters. They are most often used in unsewered areas to serve shopping centers, businesses, or housing developments. Package plants can contribute to an area's water quality problems when they fail to perform adequately. Since the units are generally small and scattered throughout a county, monitoring and inspection programs by the county health department officials are an important part of the institutional arrangement designed to ensure they function properly.

TABLE 13

PROBLEM AREA: Large-scale Treatment Plant Operation

		<u>Level of Govt</u> Federal	State	Regional or District	County	Municipality	Private Interest
<u>Responsibilities</u>							
1.	facility or program design & planning	.USEPA	.OEPA .OWDA	.MCD	.County Sanitary Eng.	.Sewage Treat- ment Div.	-
2.	review and comment	.USEPA	.OEPA .OWDA	.MVRPC	-	-	-
3.	approve plan or design (e.g. permit)	.USEPA	.OEPA	-	-	-	-
4.	construct or implement	-	-	.MCD	.County	.Munic.	-
5.	operate and maintain	-	.OWDA	.MCD	.County	.Munic.	-
6.	monitor performance	-	.OEPA	-	.SFO	.Treatment Div.	-
7.	enforce regula- tions for compliance	.USEPA	.OEPA .OAG	-	-	-	-
8.	finance facility or program	.USEPA	.OWDA	.MCD	.Board of Comm.	.Munic.	-

TABLE 13 (Continued)

EXPLANATION OF INSTITUTIONAL RESPONSIBILITIES

1. Design and Planning: Regional agencies like the Miami Conservancy District (MCD), counties, and municipalities may undertake the design and planning of their own treatment plant, either as individual entities or in some form of cooperative venture. In order to qualify for federal or state funds to both plan and construct, the local government must meet whatever specifications have been laid out for financial assistance. At the federal level, this would be the requirements for the 201 facilities planning program. At the state level, Ohio Water Development Authority (OWDA) regulations would have to be met. The Ohio Environmental Protection Agency (OEPA) assists communities wishing to qualify for the 201 funds administered by the U.S. Environmental Protection Agency (USEPA).
2. Review and Comment: The state or federal agency controlling construction grants and loans must review the designs and plans proposed for the facility being built. At the regional level, MVRPC reviews all proposals for treatment plant construction.
3. Approve Plan or Design: Those facilities built under the 201 program must be approved by the USEPA region in which they are being constructed. Facilities using state or local money must be approved by OEPA.
4. Construct or Implement: The government or special districts responsible for the planning usually contracts with private firms for the actual construction.
5. Operate and Maintain: OWDA is the only state agency with the legal authority to take over, operate and maintain a large-scale facility. This authority has not been exercised as of this writing (January, 1976). MCD, the five counties, and the municipalities in the region all have full authority to own and operate their own plants.
6. Monitor Performance: OEPA has been given the responsibility to monitor the performance of all treatment plants in the state. Each plant is required to have an NPDES permit detailing the effluent standards that it must meet.

TABLE 13 (Continued)

7. Enforce Regulations: As the primary monitoring and inspection authority, OEPA is usually the first agency to spot problems in plant operation. Corrections are worked out through informal negotiations with the owner of the plant whenever possible. If no agreement can be reached on complying with the standards in the permit, the Ohio Attorney General's office (OAG) and even USEPA's enforcement division may be called in to help settle the matter.
8. Finance Facility: Local governments may use a variety of financing methods to raise the money necessary for construction and operation. The selection includes: (1) user fees, (2) tax levies, (3) bond sales, (4) state and federal loans, and (5) state and federal grants.

Table 14 illustrates the formal arrangements of institutions involved in package plant operation. The Ohio EPA has primary responsibility for approving, inspecting and regulating plants. Any facility approved is considered an "insignificant" point source when the flow from it is less than .25 mgd for domestic sites and .05 mgd for industrial sites. As such, package plants meeting these specifications do not need an NPDES permit.

County governments also exercise regulatory powers through their control of land use and zoning decisions. Should any county have a policy of discouraging plant installation, it may carry such a policy out by making tie-in to nearby sewer lines a precondition for receiving the required subdivision approval and building permits.

Darke, Miami and Preble Counties apparently do not have any formal policy encouraging or discouraging package plant installation. Greene and Montgomery Counties, on the other hand, tend to discourage installation wherever possible. Factors contributing to inefficient and uneconomical operation and maintenance of existing plants in both counties, coupled with extensive development of existing sewerage networks makes the package plant use an inefficient way to control the water quality. Health, sanitation, and zoning officials in these two counties work together to discourage package treatment plant installation.

The institutional factor critical to further expansion of OEPA's responsibilities and programs or to a redivision of responsibility resulting in a greater involvement for the counties is how much vested interest OEPA at the state level has in continued responsibility and how amenable state authorities would be to possible alternative arrangements. How effective or extensive the monitoring and regulation is by OEPA is not known at the present time. Further interviews and investigations will determine whether conflict over shared responsibility between the state and its Miami Valley region counties is a serious possibility.

Waste Treatment -- Septic Tanks

Septic tanks and septic fields are the most frequently used disposal systems for individual homes in the region's rural areas. They are also used in the urbanized portion of the region where sewer line extension has not reached out to completely serve all customers. Montgomery County, for example, is the most heavily urbanized of the five counties, but still has 18,000 homes on septic systems.*

* Figure provided by MVRPC staff on a telephone interview with Linton and Company researchers, January 22, 1976.

TABLE 14

PROBLEM AREA: Package Treatment Plant Operations

		Level of Govt Federal	State	Regional or District	County	Municipality	Private Interest
1.	<u>Responsibilities</u> facility or program design & planning	-	.OEPA	-	.Health Dept. (HD)	HD	.Property owners Developers
2.	review and comment	-	.OEPA .ODH	-	.Health .Zoning .San. Eng.	.Zoning .San. Eng.	HD
3.	approve plan or design (e.g. permit)	-	.OEPA	-	-	.City	-
4.	construct or implement	-	-	-	-	-	.Property owner
5.	operate and maintain	-	-	-	-	-	.Property owner
6.	monitor performance	-	.OEPA	-	-	-	-
7.	enforce regula- tions for compliance	-	.OEPA	-	-	-	-
8.	finance facility or program	-	-	-	-	-	.Property owner

TABLE 14 (Continued)

EXPLANATION OF INSTITUTIONAL RESPONSIBILITIES

1. Design and Planning: Ohio Environmental Protection Agency (OEPA) is authorized to suggest package plant designs and to give assistance to private concerns requesting their help. It is up to the individual owner or developer, however, to prepare detailed plans for his own site.
2. Review and Comment: OEPA district office personnel handle the review process, informal reviews or opinions may be solicited from the county health department affected. At the same time an owner submits his design to the OEPA, he is also engaged in getting subdivision and building approval from the county.
3. Approve Plan or Design: OEPA approves facilities after its review. NPDES permits are not required of plants with flows less than or equal to .25 mgd for domestic areas and .05 mgd for industrial sites. The county plan commission or zoning board must approve subdivision plans if they are needed. Counties that wish to discourage package plant installation may exercise their authority to require sewer line hook-ups wherever feasible.
4. Construct or mplement: After receiving the proper permit, or in some cases several permits from different county agencies (e.g., Health Department, Sanitary Engineer's Office, and Planning Commission), the owner or developer builds the approved facility.
5. Operate and Maintain: Unless required to turn over the treatment plant to the county for operation and maintenance after the first year, the owner or managing authority is responsible for the plant's operation.
6. Monitor Performance: OEPA district offices are given the responsibility of periodically inspecting package plant operation.

TABLE 14 (Continued)

7. Enforce Regulations: OEPA district offices assume this responsibility, although enforcement actions are usually undertaken only when complaints are lodged, rather than as the result of periodic agency inspection.
8. Finance Facility: Design, construction, and installation costs must be paid by the property owner or developer.

Of limited operational life under ideal conditions (estimates vary between 10 and 20 years), septic tanks in the region are often short-lived when installed in impermeable soils.

Table 15 illustrates the formal arrangement of institutions that work together to regulate and keep track of septic tanks in the region. County health departments exercise most of the regulatory activities, often coordinating with sanitary and zoning officials to discourage installation when tie-ins to existing lines are possible. All five counties perform initial inspection when a tank is first installed, but none reported the time, money, or personnel to maintain an on-going program of periodic inspection. The county departments respond to individual calls for help or complaints, though. The lack of continuous inspection results in a lack of information on actual efficiency and operating life of the septic tanks. Consequently, the extent and seriousness of septic tank failure in the Miami Valley is largely a matter of conjecture at the present time. An effective institutional arrangement for septic tank regulation on a regional or county-by-county basis does not exist; however, the formal structure for such arrangements is detailed in the regulations of the county and state health codes. No significant institutional factors are considered critical as of this writing.

Problem Area: Urban Stormwater Runoff (See Table 16)

This problem area is defined as a process to control construction-related sources of pollution and pollution resulting from storm-related runoff which may result in direct discharge into a stream or the inefficient operation of a sewage treatment plant. Approaches to solutions are essentially regulatory, although it is recognized construction-related pollution may involve investment by private interests.

Policy-Making

Section 208(b)(2)(H) of the FWPCA establishes "construction activity related sources of pollution" as one of those sources for which corrective action is to be considered in a 208 plan.

Other types of stormwater pollution, and in particular, that attributable to separate storm sewer systems, was originally considered as a nonpoint source of pollution by USEPA. However, as a result of the lawsuit brought

TABLE 15

PROBLEM AREA: Septic Tank Operation in Rural Areas

	Level of Govt Federal	State	Regional or District	County	Municipality	Private Interest
<u>Responsibilities</u>						Owner Developer
1. facility or program design & planning	-	ODH	-	Health	-	Owner Developer
2. review and comment	-	-	ODH Dis.	Health Commission	-	Owner Developer
3. approve plan or design (e.g. permit)	-	-	-	Health Board	-	-
4. construct or implement	-	-	-	-	-	Owner Developer
5. operate and maintain	-	-	-	County	-	Owner Developer
6. monitor performance	-	-	-	Health	-	-
7. enforce regula- tions for compliance	-	-	-	Health	-	-
8. finance facility or program	-	-	-	-	-	Owner Developer

TABLE 15 (Continued)

EXPLANATION OF INSTITUTIONAL RESPONSIBILITIES AND STRUCTURE

1. Design and Planning: State home sewage regulations (HE-29) set minimum standards for sewage treatment and disposal systems serving one, two or three unit dwellings. Local health departments retain enforcement responsibilities and may adopt regulations more stringent than those in the State Code. The property owner or developer is responsible for designing and planning whatever facility is desired.
2. Review and Comment: The county health department, and, in some cases, the zoning and planning commissions review proposals for septic systems. Where installation at subdivisions is the issue, approval may be contingent on the review by the Ohio Environmental Protection Agency (OEPA) and the county sanitary engineer. A second review is performed by the county health department and the Ohio Department of Health for individual systems when central sewerage is not feasible.
3. Approve Plan or Design: Prior to formal approval and the issuing of a permit as authorized under HE-29-04(C), a subdivision review board composed of local health, sanitary, and zoning officials critiques the suggested plan and meets with the petitioner to iron out any differences. The board then advises the county planning agency or the board of county commissioners on the final decision.
4. Construct or Implement: Once approval is given, the owner or developer builds the necessary system.
5. Operate and Maintain: Unless the county in which the septic system is installed requires or allows the owner to turn over operation and maintenance of the system after the first year of operation, full responsibility lies with the owner or manager.
6. Monitor Performance: Regulation HE-29-04(C) permits local health departments to develop a maintenance and surveillance program. The frequency of inspection depends on the type of facility installed and the department's budgetary and staff commitment to an inspection program.

TABLE 15 (Continued)

7. Enforce Regulations: The county health department has primary responsibility for enforcing the adopted standards. In cases where an extension of sewer lines makes it possible for the property served by a septic system to tie into the new line, mandatory tap-in may be ordered by the county. The actual connection may be delayed until the septic system is judged inoperable.
8. Finance Facility: The property owner or developer is required to pay the full costs of design, construction, and installation.

against USEPA by the National Resources Defense Council (NRDC), EPA has been forced to develop regulations considering the regulation of separate storm sewers as a point source under the NPDES program. Under proposed regulations amending Part 124 of Title 40 of the Code of Federal Regulations (issued December 2, 1975), USEPA has established requirements concerning the addition of separate storm sewers, as defined by USEPA, to the NPDES permit system.

While the state policy on urban runoff as it includes separate storm sewers is not known (but would become part of the Ohio NPDES permit program if the Federal regulations are adopted), the state has developed proposed policies regarding construction-related runoff.

Ohio EPA and the Division of Soil and Water Districts, ODNR, have developed a set of proposed regulations regarding the control of soil erosion and sedimentation in urban areas (see the report, State Agencies Impacting Regional Water Quality for a full discussion). The authority to implement such a set of regulations is contained in H.B. 1011 which was introduced in the Ohio General Assembly in January, 1976.

At the regional level, there is no known policy-making activity; however, both MVRPC and MCD have assisted in the preparation and review of the proposed state regulations and are working to identify the extent of each problem in the region.

At the local level, the only known instance of a unit of local government establishing policy on soil erosion and sedimentation control is the city of Englewood which has adopted appropriate ordinances (Chapter 1321 of the City Code). Under the proposed state regulations, the local Soil and Water Conservation Districts (SWCDs) would play a major role in providing technical assistance and in monitoring adoption by urban areas of these regulations.

There does not appear to be other activity in this area at the local level other than the recognition by, among others, Dayton, that storm water runoff is a significant problem.

Planning

The USEPA has prepared guideline booklets which address the problem of construction-related runoff and,

TABLE 16
PROBLEM AREA: Urban Stormwater Runoff

	Level of Govt. Federal	State	Regional or District	County	Municipality	Private Interest
<u>Responsibilities</u>		OEPA ODNR	MVRPC* MCD*	-	Dayton Englewood	-
1. Policy-making	USEPA	OEPA ODNR	MCD MVRPC	-	Dayton	-
2. Planning	USEPA	OEPA ODNR	MCD MVRPC	-	Dayton	-
3. Operations	-	ODNR+	-	SWCD*	Englewood	-
4. Regulation	USEPA*	ODNR*	-	SWCD*	Englewood	-
a. Standards	USEPA*	ODNR*	-	-	Englewood	-
b. Monitoring	-	ODNR*	-	SWCD*	Englewood	-
c. Enforcement	-	ODNR*	-	SWCD*	Englewood	-
d. Penalties	-	Ohio Att. Gen.	-	-	Englewood	-
5. Financial	USEPA	OEPA ODNR	-	-	-	yes
a. Improvements	-	-	-	-	-	yes
b. Fees	N/A	N/A	N/A	-	Englewood	-
c. Program Support	USEPA SCS (in kind ser.	OEPA ODNR*	-	all co. SWCD in- kind ser- vices	Englewood	-

* Proposed

+ Existing activities, but additional activities proposed

in the sense of establishing programs to address separate storm sewer pollution has, as discussed above, issued preliminary regulations addressing the manner in which the problem might be controlled.

The Ohio DNR and Ohio EPA have addressed the problem of construction-related erosion control and sedimentation runoff in the proposed regulations and the legislation authorizing the implementation of those regulations.

The work of the MCD is presumably including the identification of the extent of urban pollution in the Miami Valley region and will most likely recommend corrective measures to control such pollution where it is a problem.

At the local level, Dayton is studying the problem of urban runoff; however, the exact study and progress of that study is unknown.

Operations

There is no known activity at the federal level which involves participating in the control of either construction-related or storm sewer-related pollution.

At the state level, the extent of involvement has been in the development of sedimentation control regulations, and technical assistance services provided to units of local government in developing their own regulations.

There is no known involvement by regional agencies in the control of either source of pollution discussed here.

The operations activities at the local level are for the most part nonexistent except in the case of Englewood which has implemented its own regulations. In addition, the SWCDs have been active in assisting interested municipalities. For example, the Montgomery County SWCD helped Englewood develop its ordinance. Under the proposed program, additional field staff would be assigned to either each county SWCD or to areas within the state to train SWCD and local government staff, and in cases in which sedimentation control ordinances have not been adopted, would administer a regulatory program under the jurisdiction of the SWCDs or the Division of Soil and Water Districts, ODNR.

Regulation

The federal government has established no regulations concerning construction-related activities, although it has determined this should be addressed. Separate storm sewer regulation has been addressed in the proposed amendments to the Code of Federal Regulations cited under the heading, Policy Making.

There are no regulations at the state level; however, the report, A Review of State Agencies Impacting Regional Water Quality Management, discussed the ODNR regulations as they pertain to construction-related sources of pollution. The state would presumably have to incorporate separate storm sewer permitting into the Ohio NPDES system as a result of the change at the federal level.

There is no regional regulatory apparatus nor are there examples of such at the local level, except in the case Englewood.

Financial

There are no federal funds available for supporting the cost of a regulatory program for the control of construction-related pollution, nor are there funds available for other urban runoff regulatory programs. However, to the extent a future program to control separate storm sewer pollution results in the expansion of the NPDES permit program, the federal grant to states under Section 106 of the FWPCA will provide such funds to Ohio.

At the state level, the involvement of the ODNR in regulating construction-related pollution would come from appropriations as well as from a budget request of \$2 million for a statewide field staff. As noted elsewhere these funds have not been appropriated, but may be should the enabling legislation be passed. The regulation of separate storm sewer pollution would presumably come from the amount allocated the state by USEPA.

There are no funding mechanisms to support a regulatory program for either pollution source at the regional level.

The extent of involvement at the local level is minimal at the present time. However, to the extent the SWCDs have been involved, financial assistance to support their involvement has come from the sources of funding outlined in the section on agricultural runoff.

Comments

Involvement in regulation of the pollution sources discussed above is almost nonexistent at all levels of government. This applies not only to such programs as they relate specifically to the Miami Valley region, but at the state level and below, and most likely applies throughout Ohio. The potential involvement of the state and the SWCDs is encouraging, but the capacity and capability of pertinent agencies to implement appropriate approaches depends on state enabling legislation as well as on making adequate funds available for such purposes. The problem of other urban runoff pollution problems might be addressed must await completion of the work of MCD.

Problem Area: Agricultural Runoff (See Table 17)

This problem area is defined as the process of identifying and developing procedures to control agriculturally-related nonpoint sources of pollution. Approaches to solutions involve both regulation and the construction of improvements.

Policy-Making

The federal government has established agricultural runoff as an area in which work must be done to identify the extent of the problem and "... set forth procedures and methods (including land use requirements) to control to the extent feasible such sources ..." (Section 208 (b) (2) (F)).

At the state level, agricultural runoff has been addressed in a set of proposed regulations issued by the Division of Soil and Water Districts, ODNR. In addition, authority to implement those proposed regulations is contained in H.B. 1011, which was previously mentioned.

There are no regional or local policies on agricultural runoff at the regional level.

Planning

The USEPA involvement in planning has been limited primarily because of the activities of other agencies at all levels of government. The extent of planning done by other federal agencies is unknown.

At the state level, the Division of Soil and Water Districts has developed a set of programs to implement an approach to controlling agricultural pollution sources. This program is outlined in greater detail in the report, A Review of State Agencies Impacting Regional Water Quality Management.

TABLE 17
PROBLEM AREA: Agricultural Runoff

	Level of Govt. Federal	State	Regional or District	County	Municipality	Private Interest
<u>Responsibilities</u>						
1. Policy-making	USEPA USDA	OEPA ODNR	-	-	N/A	-
2. Planning	-	ODNR	MVRPC MCD	-	N/A	-
3. Operations	-	ODNR+	-	SWCD+	N/A	yes
4. Regulation	-	ODNR	-	-	N/A	-
a. Standards	-	ODNR	-	-	N/A	-
b. Monitoring	-	-	-	SWCD*	N/A	-
c. Enforcement	-	ODNR*	-	SWCD*	N/A	-
d. Penalties	-	Ohio Att. Gen.*	-	-	N/A	-
5. Financial	USDA	ODNR+	-	SWCD+	N/A	yes
a. Improvements	USDA	ODNR+	-	-	N/A	yes
b. Fees	-	-	-		N/A	-
c. Program Support	SCS (in- kind serv.)	ODNP+	-	all counties SWCD (in- kind serv.)	N/A	yes

*Proposed

+Existing activities, but
additional activities proposed

There is no regional agency at the present time which has developed a plan addressing agricultural runoff except that being prepared under the 208 program; first, by the MCD to identify the extent of the problem, and by MVRPC in beginning to formulate a management plan, one component of which would address the problem.

At the local level, there is no known planning activity in this area.

Operations

The formal agreement between the U.S. Department of Agriculture (USDA) and the USEPA concerning coordination between the two departments; and the proposed agreement between the Soil Conservation Service (SCS) and EPA (See the report, A Review of Federal Programs Impacting Regional Water Quality Management for a full discussion of each) indicates the extent of the involvement by the two federal agencies for the purpose of agricultural pollution abatement.

At the state level, the extent to which USDA and Ohio EPA staff are working together on nonpoint pollution source programs is unknown. However, there is a continuing information exchange between the Division of Soil and Water Districts, ODNR, and OEPA concerning the Division's proposed pollution abatement programs.

At the regional level, there is no known activity involving the implementation of pollution abatement programs.

The focus of activity at the local level are the county Soil and Water Conservation Districts (SWCD). The districts at the present time are staffed with SWCD and SCS personnel who provide technical assistance to landowners and local units of government. Under the proposed regulations, the local SWCD's would play a greater role (See the report, A Review of State Agencies Impacting Regional Water Quality Management for a discussion of the program).

Regulation

There is no known regulatory activity at the federal level which would affect pollution abatement programs at the local level.

At the state level, the only regulatory activity would be that assigned to the Division of Soil and Water Districts if the proposed pollution abatement regulations are implemented (See the report, A Review of State Agencies Impacting Regional Water Quality Management). The state did set the standards against which runoff would be measured.

At the regional level, there is no known activity in regulatory programs nor would there be under the proposed ODNR program.

At the local level, the Soil and Water Districts would have the primary responsibility for monitoring and enforcing agricultural pollution abatement regulations. However, the ability of the districts to do this is dependent on the addition of staff and on a supplemental appropriation of \$2 million as noted by the SCS agent attached to the Montgomery County Soil and Water District.

Financial

There are a number of federal programs which provide assistance to landowners installing improvements to control runoff. Discussed more completely in the report, A Review of Federal Programs Impacting Regional Water Quality Management, they include:

- *Watershed Protection and Flood Prevention
- *Agricultural Conservation Program and
- *The in-kind assistance provided by the Soil Conservation Service (SCS) through the County Soil and Water Districts.

At the state level, financial assistance to undertake agricultural pollution abatement programs or projects is in the form of in-kind assistance of the Division of Soil and Water Districts and through annual appropriations to each of the Ohio 88 SWCDs. The proposed program does provide for cost-sharing for approved agricultural practices. However, the state funds were to have been included in the \$5 billion bond issue which was defeated in the November, 1975, statewide referendum.

At the regional level, there is no known program of financial assistance.

At the local level, the assistance available is through technical assistance services of the Soil and Water Conservation Districts. This assistance is supported through county appropriations and local donations. For the five county areas, the financial assistance from these sources in 1975 was:

	<u>Total</u>	<u>State</u>	<u>County</u>	<u>Local</u>
Darke	\$12,46 36	\$ 5,814.36	\$ 6,000.00	\$682.00
Greene	27,260.00	12,000.00	15,000.00	260.00
Miami	17,437.47	8,257.47	9,050.00	430.00
Montgomery	18,630.00	8,500.00	10,000.00	130.00
Preble	26,155.00	12,000.00	13,800.00	355.00

Although at present, Boards of County Commissioners are authorized to levy a tax for SWCD purposes within the ten-mill unvoted tax levy limitation, there are no instances of this within the five county region. A bill in the Ohio General Assembly, S.B. Number 334, authorizes counties to levy a tax outside the ten-mill limitation with a two-thirds vote of the people. This levy would support the activities of the district as they relate to environmental conservation and water management.

Comments

At the present time, there is no county or regionwide coordinated program addressing agricultural runoff. While the majority of existing activity does take place through the SWCDs, it is entirely voluntary. Even though that may change with the passage of state legislation authorizing a greater role for the SWCDs, financing such a program remains a problem, and particularly in providing matching funds for the implementation of recommended agricultural practices. Although there are federal funds available for some practices, they cannot generally be used for the range of practices considered necessary by the state.

FINANCIAL CRITICAL FACTORS

This section summarizes the financial critical factors necessary for implementing a 208 plan for the Miami Valley region. The term, "financial critical factors," has been defined as those factors that must be taken into account by the management agency or agencies charged with financing plan implementation involving structural solutions.

Another report, Financial Critical Factors Analysis, reviews in depth the different financing mechanisms available to local governments in the region. Analysis of the research done in that report reveals that the specific critical factors for financing are linked to the fund-raising methods available to local governments. Therefore, this discussion is a condensed presentation of the conclusions reached in the other report.

Two general findings are of particular importance to the 208 planning process and ultimately to implementation of the 208 plan. First, if the need arises, the range of financing mechanisms is wide enough to permit local governments with different fiscal and political constraints (e.g., voter resistance to increased tax levies) to choose a method or combination of methods that is appropriate for their purposes. Second, there are specific contract financing methods that can be used to facilitate regionalized waste treatment systems.

Debt Financing

In its simplest form, debt financing involves taking out a loan to pay the capital costs (or a predetermined portion of those costs - i.e., 25 percent) of a facility and then paying back the principal and interest over a long period of time with tax or service revenue. The financing methods applicable to this strategy are: (1) general obligation (G.O.) bonding, (2) straight revenue bonding, and (3) special assessment bonding.

There are statutory limitations on the total amount of indebtedness a local government can incur, and constitutional limitations on the unvoted tax levies a community can use to support G.O. bond retirement. Upon examination, however, these limitations were judged not to be critical factors in and of themselves. In particular, the 10-mill limit on unvoted tax levies has not prevented taxation rates from rising because local electorates have, in the past, approved levies above that figure. Unvoted millage

within the 10-mill limit is probably considered a more appropriate way to meet increasing operating expenses than it is to retire long-term debt. Thus, the extent to which the 10-mill limitation constrains a community's debt financing for facility construction is minimal, particularly in light of other debt financing alternatives not requiring the allocation of tax millage which are more appropriate for financing local treatment facilities.

The G.O. bond retirement is, however, ultimately dependent on property tax revenues. This fact, together with the 10-mill limit on tax levies and the apparent present opposition of local voters to additional tax burdens, does limit the options available to public agencies when they consider debt financing through bonding as a way to finance expensive water quality control projects.

There are ways to make greater property tax revenues available to municipal corporations and counties. First, by increasing the percentage of true value (e.g., assessed valuation) on which taxes are levied from its current 35 percent in most places, the state would increase the amount of revenues available within the 10-mill limitation, and potentially available for the retirement of general obligation bonds. Second, the current allocation of the 10-mills could be evaluated and changed if necessary to reflect the current needs of municipal corporations and counties in light of current revenue sources available to each. The political costs of realizing these objectives must be evaluated if increasing tax revenues is considered as a way to finance 208 plan implementation.

Revenue bonding -- the other major debt instrument-- has been used by state and municipal and county officials as a means of financing needed types of public improvements which have a revenue base. Although revenue bonding has been used for the reason cited above, there are mitigating factors that must be considered by the issuer before a revenue bond offer is made.

The cost of borrowing is generally lower for G.O. bonding than revenue bonding. In addition, the costs of preparing a revenue bond issue are greater than those required for a G.O. bond issue. This last fact is a result of the amount of preparation necessary to document the profitability of a revenue bond issue to potential buyers. These two factors, plus the conditions on the money market mentioned below, tend to make local governments look to the other financing mechanisms covered in this report, and specifically, contract financing.

Special assessment bonding is for the most part, not used for facility construction, but rather is used more often for local sewer lines benefiting particular properties. The reason for this is that the special assessment technique can then be used to apportion the costs of improvements to the specific properties benefited.

Special assessment debt is issued to allow property owners to spread the costs of the particular improvement over a number of years. It is a relatively small part of total municipal and county debt outstanding.

Counties, however, as opposed to other governments, are a major issuer of special assessment bonds. This is evident from the amounts of such debt outstanding, as indicated in the Ohio Compendium of Municipal Debt. Although Darke and Preble Counties have no outstanding special assessment debt, the counties experiencing greater development do have significant percentages of total debt in special assessment debt. At the beginning of 1975, Montgomery County had 24.96 percent outstanding; Greene County, 16 percent, and Miami County, 4.7 percent.

Municipal corporations, counties and the Miami Conservancy District, with the assistance of their bond counsels, take borrowing costs into consideration in the choice of a financing method. It is difficult to come to definitive conclusions about the costs of borrowing for specific communities or specific projects without an in-depth analysis of the community or project as well as the money market at the time a financing technique is chosen.

Contract Financing

The Legal Critical Factors Analysis includes a discussion of the contracting authority of various agencies at the municipal, county and state levels. The authority for municipalities to contract with one another, or municipalities to contract with counties, and the authority for both municipalities and counties to contract with the Ohio Water Development Authority (OWDA) provides a way in which local government can meet USFPA requirements regarding regionalization of waste treatment plants. In the case of OWDA-local government contracting, it provides a way to reduce borrowing costs; and in the case of municipal-municipal or municipal-county, the ability of local governments to contract finance provides a way in which to consolidate and economize on the provision of waste treatment services. Perhaps most importantly, these contractual arrangements as well as those involving OWDA do

not constitute bonded indebtedness; and, as a result, no debt limitations apply. For these reasons contract financing is an attractive method for many governments in the region.

In the Miami Valley, a major user of the contract financing technique, in addition to many local communities and counties contracting with OWDA, is the Miami Conservancy District (MCD). The District has utilized OWDA financing assistance for the Franklin and Clear Creek projects and expects to use OWDA for the Twin Creek Interceptor project which is on the OEPA FY 1976 Priority List. In turn, the District's role as a wholesaler of wastewater treatment services (for the Twin Creek project, users will include the counties of Warren and Montgomery, and the communities of Germantown, Carlisle, and Chautauqua) involving as it does communities and/or counties, facilitates the establishment of regional arrangements.

Summary

The purpose of this review of the financing methods available to municipal corporations, counties, and MCD is to identify factors that would affect the ability of these public agencies to finance the construction of wastewater and related treatment facilities through bonding or contract financing. The financial factors considered critical, by category, are the following:

Debt Financing	The margin of allowable debt left to a community that wishes to raise its share of the local cost through general obligation bonding; The chances of passing a tax levy where voter approval is required; Market conditions that affect the long-term costs of borrowing.
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Contract Financing

The OWDA's ability to market bond issues that will raise revenue to cover the local share of 208 plan implementation;

The terms OWDA can offer to those municipalities that wish to use contract financing.

**General Financial
Considerations**

The range of financing mechanisms existing now allows local communities considerable flexibility in working out arrangements best suited to their needs. Should the range change, new considerations of the critical factors will have to be made.

Contract financing is an important way to coordinate individual projects and achieve regional benefits beyond those applicable to the affected community.

GLOSSARY

Contour Plowing and Tilling: Plowing and tilling with the shape of the land to minimize erosion from wind and water.

Controlled Sequential Development: Controlled sequential development is the linking of permission for development to a capital improvement program which phases, within a given jurisdiction, the installation of essential facilities required by expected population increases over a given period of time.

Conservation Easements: An alternative to outright acquisition via eminent domain or purchases, a conservation easement is a right running in favor of the government which requires a landowner to restrict the use and development of his land in certain specified ways. The government purchases this right from the landowner who otherwise continues to have all rights to his property.

Crop Rotation: The seasonal alternation between nitrate-bearing crops, such as soybeans, with non-nitrate bearing crops, such as corn, to minimize the need for large amounts of fertilizer.

Development Rights Transfer: Sometimes referred to as "TDR," this is a method by which all or a portion of the right to build on a specific parcel of land at a given density may be separated from the parcel's other property rights and sold to nearby property owners. It relies on existing zoning assumptions which allow for the regulation of a building's physical volume. TDR has been used to preserve landmarks in New York City by permitting the transfer of authorized but unused volume to an adjacent property owner, thus compensating the owner of the landmark and reducing the pressure to demolish the older structure and put up a more profitable, modern building.

Flood Plain Control: Flood plain control is the restriction or outright prohibition of certain uses and structures (e.g., residential, commercial, and

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industrial) in the 100-year flood plain of a river, stream, or creek via a jurisdiction's zoning powers. The "100-year flood plain" is the area flood once every 100 years by a particular body of water. Another way of saying this is to say that it is that area which has a one percent change of being flooded in any given year.

Ground Cover Maintenance: The reduction of erosion after plowing and tilling by applying mulch or a temporary vegetative cover that can be planted through.

Land Banking: Land banking is a system by which a governmental entity acquires a substantial fraction of undeveloped land in a region for the purpose of controlling that area's future growth. The technique is used in Europe, but has not been tried in the United States.

Peak Period Run-off Limits: Usually included in subdivision regulations, this type of land use control requires that the amount of run-off from any specific development not exceed the carrying capacity of the natural drainage system in the affected watershed during some specified period and intensity of rainfall.

Performance Standards: Performance standards are "output measures" applied to specific types of development as a substitute for generic types of classification (e.g., light and heavy manufacturing districts) found in conventional zoning ordinances. Performance standards fix objective limits on aspects of those activities that, in excess, become nuisances. Standards can be applied to noise, vibration, light, smoke, dust, dirt, odors, and potential for fire or explosions. Recently the concept has been expanded to include water quality concerns (e.g. sedimentation controls).

Planned Unit Development: A planned unit development (PUD) is a land development project comprehensively planned as an entity via a unitary site plan which permits flexibility in building siting, mixtures of structural types, and land uses, usable open spaces, and the preservation of significant natural features. As an alternative to conventional zoning, the PUD process allows a developer and a local government to negotiate over site planning issues and other aspects of a builder's plan.

Preferential Use Valuation: This kind of tax law is usually a statewide statute permitting low assessments and deferred taxation of agricultural land to encourage farmers in an urbanizing community to keep their land for farming rather than sell it because of a reassessment that subjects it to a higher rate of taxation.

Service Charge Mechanisms: A service charge mechanism is a charge set against effluents (generally BOD and suspended solids) based on the actual cost of incurred damage that waste would cause to receiving waters.

State or Regional Prerogatives: Generally a state or regional prerogative applies to the review of plans and the issuance of permits to carry out a certain activity, such as the installation of sewage systems or land-fills, within a specific area.

Utility Extension Policies: "Utility extension policy" is a general heading for a variety of strategies used by local governments to ensure that certain preconditions are met by potential contractees for services before those services are actually offered. The best example is a municipal policy to only extend water or sewage to those portions of a locality which will agree to incorporation into the municipal.

Utility Pricing Policies: Any government which charges a different fee for its services to another community outside its jurisdiction than it does to its residents has adopted a differential pricing policy to raise operation and maintenance revenue.

Wetland Preservation: Wetland preservation is a review and permit-granting process governing damming, filling, dredging, waste discharge, land use practices, and the use of pesticides in order to protect wetland areas (e.g., marine grass beds, tidal marshes, fresh water swamps, and shell fish waters).

Zoning:

Local governments divide their territory into mapped "zones," each subject to a different but uniform set of land use regulations. Zoning ordinances are used to control the size of a parcel; the size, height, and placement of structures on that parcel; and the uses permitted for structures and land within each zone.

APPENDIX A

THE CONCEPT OF CONTROLLED TRENDS

In a publication entitled, Alternatives for the Future, MVRPC presented several different development patterns projected roughly 20 years into the future. The Commission's objective was to stimulate local governments and Miami Valley residents into moving towards a consensus on what the general pattern of future development for the region would be. After identifying the major characteristics of each alternative and analyzing the kind of policy decisions necessary to realize them, MVRPC selected the "Controlled Trends" alternative as the basic concept for a Regional Comprehensive Plan. The concept was formally adopted by the Commission on July 26, 1973. It assumes that current political, legal, and social realities will prevail without radical change. The rest of this discussion is excerpted from Alternatives for the Future, a 1973 MVRPC publication.

Each of the four alternative development concepts has inherent qualities which make its realization undesirable or unlikely. The first, "Continuation of Present Trends," means continuation of the same problems now facing many communities.

The remaining three, "Satellite Communities," "Radial Corridors" and "Concentrated Growth," requires an unprecedented degree of intergovernmental cooperation, major revisions in State law dealing with taxation and development controls, heavy capital investment in certain types of transportation systems, an aggressive and far-sighted regional open space acquisition program -- in short, major reconsiderations and priority reorderings for Miami Valley decision-makers.

For these reasons, the Miami Valley Regional Planning Commission has opted for a fifth alternative as the guiding development concept of its Regional Comprehensive Plan. Called "Controlled Trends," it represents a compromise position. It draws together some of the best features of the other four alternatives while maximizing options for the future and offering a reasonable chance for implementation within the current governmental, legal, and political environments.

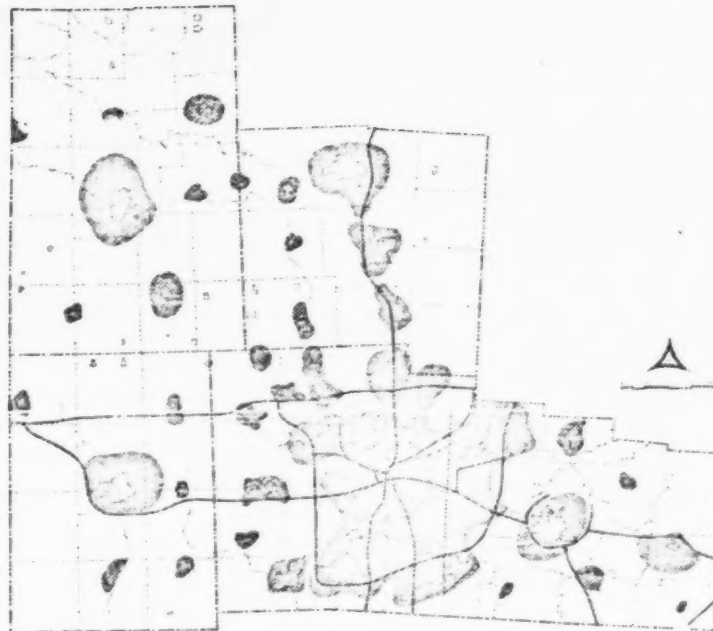
ALTERNATIVE I



Characteristics

In the development pattern known as "Continuation of Present Trends," most of the Region's growth occurs in suburban locations around existing urban areas and along established highway and river corridors radiating from the Dayton core area. Aided by the initial availability of low-cost land, development in the fringe areas assumes a sprawl form -- a series of hops, skips and jumps which leaves large amounts of undeveloped land between fully developed subdivisions.

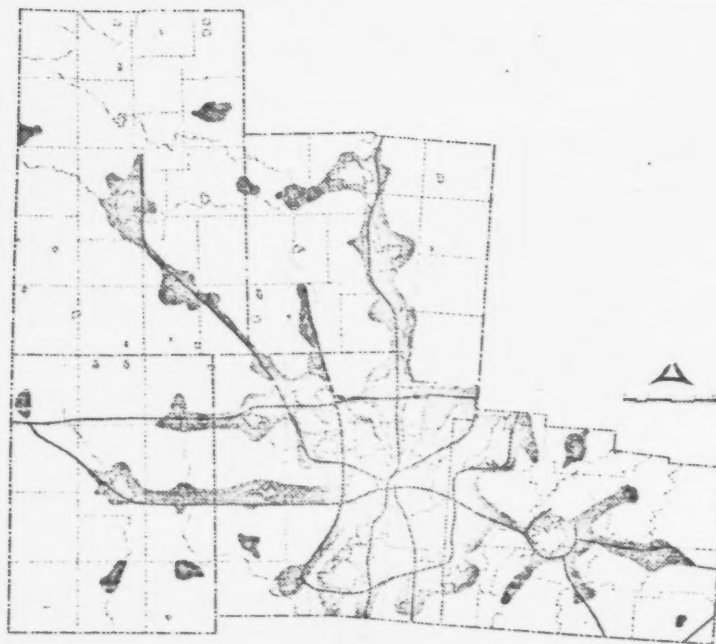
ALTERNATIVE II
"SATELLITE COMMUNITIES"



Characteristics

In the "Satellite Communities" development form, most growth occurs in new towns and in areas surrounding the major outlying cities of the Region. New towns created on presently vacant or rural land are designed as physically cohesive communities. They contain a range of housing types and employment opportunities broad enough to attract a varied population and to minimize work-related travel. The outlying communities around which the new growth will be concentrated are selected for their strategic locations on existing transportation routes as well as their existing or potential ability to provide a reasonable employment and public facilities and services base.

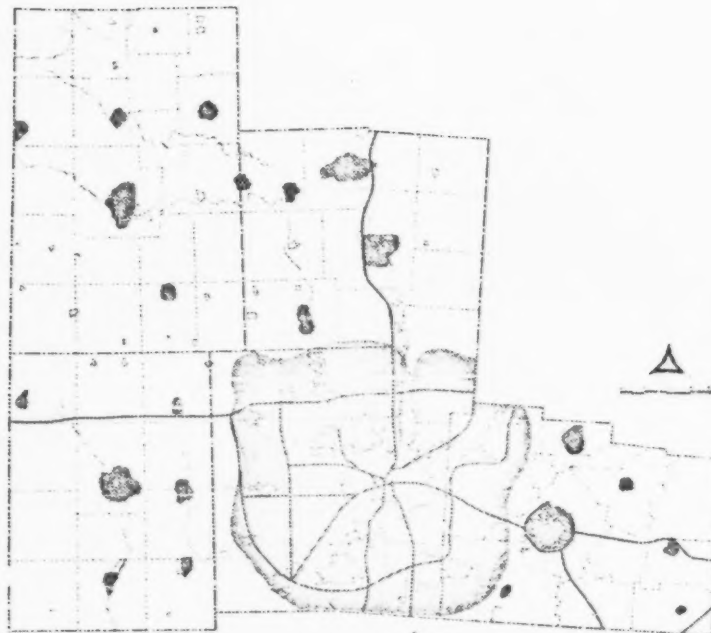
ALTERNATIVE III
"RADIAL CORRIDORS"



Characteristics

Like the satellite communities alternative, the "Radial Corridors" approach concentrates urbanization in well-defined areas separated by the rural countryside. The chief distinction is that the radial corridor pattern pulls the satellites together along major highway and transit routes. In this way, the corridor pattern retains the advantages of concentrated and well-organized urbanization with minimal public acquisition to preserve large open spaces along the corridor axis between centers of population.

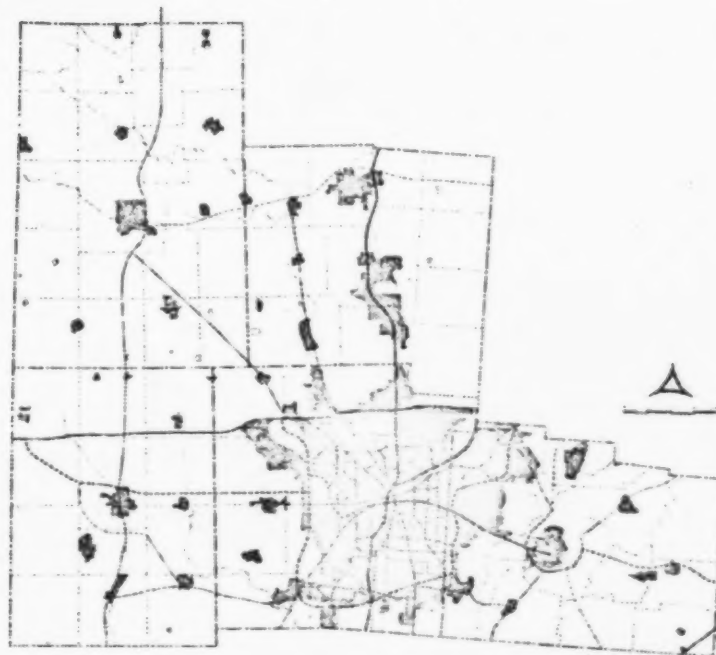
ALTERNATIVE IV
"CONCENTRATED GROWTH"



Characteristics

The "Concentrated Growth" alternative accepts urban concentration as a generally desirable trend and aims at keeping the physical extent of the Dayton urbanized area more limited and compact. The urbanized area, as well as the major outlying cities, continues to grow; however, land is used more conservatively than in the current low-density sprawl. Existing vacant and idle land is first developed and a slow expansion outward follows.

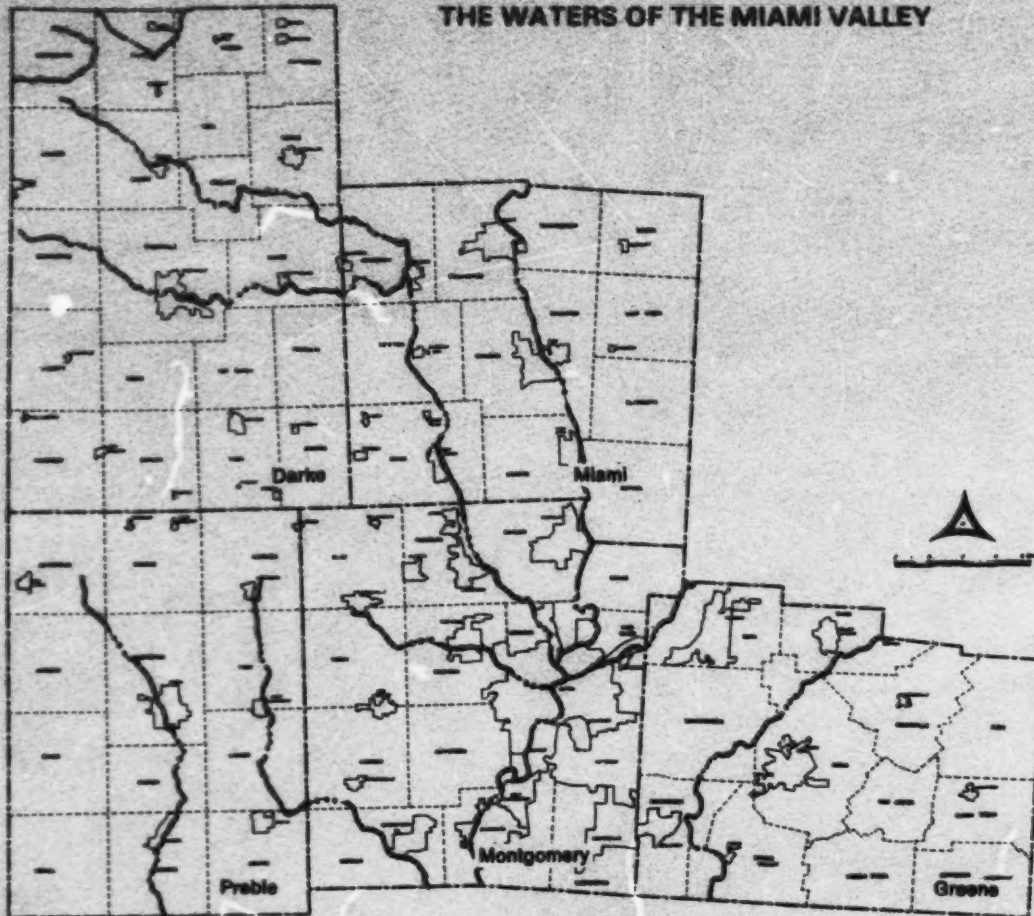
ALTERNATIVE V
"CONTROLLED TRENDS"



Characteristics

The Controlled Trends alternative builds upon existing urban development. Idle land within urban areas is gradually developed and suburban municipalities sequentially expand outward. Locating at strategic points in the Region, new towns may absorb some of the growth. The major thoroughfare system continues to exert a dominant influence in shaping the Region; development is stimulated at freeway interchanges and within arterial highway corridors.

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What is MVRPC?

The Miami Valley Regional Planning Commission (MVRPC) is a voluntary organization created by local governments in 1964 to assist officials and citizens in better understanding common problems and various corrective courses of action. Of high concern, also, is attempting to maximize the use of our natural, fiscal and human resources. Direct service and technical assistance is provided upon request in numerous functional areas. Typical of such services are: data and information related to our Region's goals, policies and priorities.

The members of the Commission are local elected officials; therefore, directly responsible and accountable to the citizens of the region and their various units of government.

Annually, the Commission selects specific issues for investigation and evaluation. After selection, the MVRPC follows procedures allowing for participation, review and comment by representatives of all points of view, all affected levels of government, technical experts, and interested groups and individuals. The Commission then, at public meetings, debates each issue and formulates its position. Commission findings and recommendations are published for consideration by the jurisdictions making up the Commission. Implementation of recommendations only occurs when local units of government officially take action.



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